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EGSA

Safe Bet

Track/Casino Installs
Standby Power System

POWER-GEN 2009

Details on the EGSA
On-Site Power Pavilion

New EGSA Practice
Seismic/Wind Certification
for IBC Compliance

Clean Energy
Implement Projects
With DoE Resources

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EGSA Fall Conference
Receives Rave Reviews

Tactical Power
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On the cover: the U.S. Military takes a partnered approach to working with On-Site Power manufacturers to enable operations. Page 17.



An Indiana Track and Casino finds that installing a standby power system is a safe bet Page 36.

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POWER-GEN Middle East 2010

October 4-6, 2010; Doha, Qatar

The region's leading exhibition and conference for the power generation, transmission and distribution and water industries. To exhibit, contact Denne Johnson at dennej@pennwell.com

Conferences

EGSA 2010 Annual Spring Convention

March 14-16, 2010, St. Petersburg, FL

The Association's Annual Convention of Members. Speakers will cover business and technical aspects of On-Site Power Generation and current industry trends. For additional information, visit www.EGSA.org or call (561) 750-5575.

EGSA 2010 Fall Technical & Marketing Conference

September 12-14, 2010; Newport Beach, CA

Speakers will cover business and technical aspects of On-Site Power Generation and current industry trends. Registration information is available online at www.EGSA.org or call (561) 750-5575.

Schools

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*To be held concurrently with POWER-GEN International

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Check out our calendar at www.EGSA.org. EGSA Members: To list your meetings here, email your info to D.Ferreira@EGSA.org



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Throughout every issue of Powerline, trademark names are used. Rather than place a trademark symbol at every single such occurrence, we aver here that we are using the names in an editorial fashion only. EGSA has no intention of infringing on these trademarks.

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Greg Linton
2009 EGSA President

Where Do We Go From Here?

I know you've experienced it: you're almost to your destination—you sort of remember the way. At the same time, the voice in your GPS is chirping "in one half mile, turn right on ABC Street." You get there, and it just doesn't seem right so you follow your instinct. Meanwhile, the GPS announces "recalculating" followed by "in a quarter mile make a u-turn if possible." And that leaves you asking, where do we go from here? That's a very relevant question for EGSA. We are clear on where we are and, in spite of the economy, there are options for our Association. Which one(s) do we pursue? To answer that, let's explore our areas of strength.

Financial Health

Again, in spite of the economy and the challenges facing our individual businesses and the marketplace as a whole, we are very healthy. A nod of gratitude has to go to previous leadership and the decisions made to protect our assets and pave the way for our future. Individual member companies have significantly contributed to our health. It is your investment in EGSA that makes this possible. Thank you for choosing to be an EGSA Member in good standing. It takes each one of you to make all 700 of us work.

Leadership

Individually we may all have noticeable limitations, but together the EGSA leadership is strong and influential. We are made strong by a common bond of enhancing our Association and our industry. We are also strong because we have a unique cross section of industry professionals capable of and willing to move forward for the betterment of all. Further, we are privileged to have a strong balance of new young talent blended with our industry veterans.

You would be interested to know that we are revising our Board Nomination process to ensure the best use of the talent available to EGSA. A synchronized effort to create an intentional program of identifying leadership candidates with planned development is underway. Do we know *you*? Do we have your name?

There are numerous other things to talk about such as the Education programs, the Committees, internal communication and the strategic plan to name a few. But, in these last few lines, let me comment on the EGSA family.

Like most families, we are weird. We each have different interests, different drives, different economic, political, business and religious views, different geographic locations, different gifts and talents and so much more. Like most families, we don't always agree or always like each other. However, unlike most families, we are healthy and strong. It is a great honor to see the interaction, the genuine interest, the encouragement and the compassion that exists in EGSA. I marvel that we can take a family of 700 and get along, make progress and succeed. Simply amazing!

So where do we go from here? How about heading to Las Vegas for POWER-GEN December 8 and then St. Petersburg, FL for the EGSA Annual Spring Convention March 14-16, 2010? Let's continue to work both in and on our committees and our programs; let's follow our strategic plan. Let's continue to communicate with each other openly and honestly. Let's continue to challenge each other to new heights of excellence. Let's continue to support each other, build each other up, encourage each other and remember what we've learned from the tough times. Let's keep those lessons near as we enter a more robust 2010. ■

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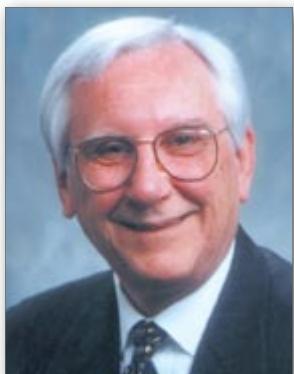
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George Rowley
EGSA Director
of Education

EGSA Reaches Milestone With 300 Certified Technicians

In October, the 300th technician passed the EGSA Electrical Generator Systems Technician certification test. While the final numbers for October were not available at press time, the number of Certified Technicians continues to grow monthly. This year, an average of six techs per month have passed the Certification test; the current overall pass rate is 74%. We set a new record in August when 22 technicians passed the test! That edges out the old monthly record (April 2008) that saw 21 technicians pass the test. While the sluggish economy has slowed the pace of program growth, the growing number of Certified Techs continues to demonstrate the value of the program.

Techs in 36 U.S. States, Canada, Trinidad, and Guam know the value of the EGSA Generator Technician Certification Program!

New "Minimum Experience" Requirement

At their September meetings, the EGSA Certification Committee recommended and the EGSA Board of Directors approved a policy change whereby technicians will need a minimum of three years' experience before they are eligible to take the Certification test. We are in the midst of making the transition to this new policy, and it should be fully implemented by the end of November.

What is the Impact of Certification?

We are surveying every tech who took the test in 2009—pass and fail—in an effort to find out what they think about the program and discover how we might improve it. We will continue to distribute the survey via email and regular mail until the end of 2009. If you took the test in 2009, please complete the survey; we need your valuable opinion! If you have not received a request to complete the survey, please email G.Rowley@EGSA.org.

This survey provides us with a unique opportunity to learn how certification impacts technicians and their careers. We're actively seeking first-hand testimonials about the value and benefit of being certified for use in expanding and enhancing our efforts to market the certification program to the industry.

We want employer testimonials, too! We need their perspectives on the value and benefits of employing Certified Technicians. However, we do not currently have an effective and efficient way of identifying the key decision-makers who employ certified techs. Please share your experiences with us! Email G.Rowley@EGSA.org and tell us how employing Certified Technicians has enhanced your business.

Manufacturer Support Keeps Growing

We are very pleased that Ferris State University has approved MTU Onsite Energy as an EGSA certification Testing Center. MTU joins Caterpillar on the growing list of approved manufacturers. By locating a Testing Center within their training centers, affiliated technicians will be able to complete their factory training, study for their EGSA Generator Technician Certification, and take the test all in one convenient location.

We applaud these industry leaders and extend our appreciation for their support of the certification program.

If you have questions or comments about EGSA Education programs, please contact George Rowley, EGSA Director of Education via email at G.Rowley@EGSA.org or phone 561-237-5557. ■

Certified Technician Demographics

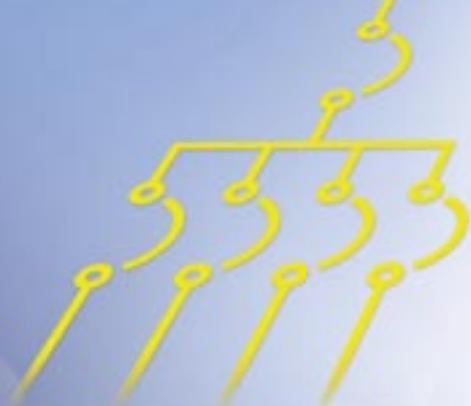
As of September 30, 2009 the number of EGSA Certified Technicians was distributed as follows:

26	GA
20	CA, MI
19	FL, OH
18	Ontario Canada
17	CT
14	AZ
13	NC, PA, TX
12	VA
11	NY
8	NJ, Trinidad
7	MA, MO
5	MD, SC, WV
4	CO, IL, NH, UT
3	TN
2	Guam, IA, ID, IN, LA, NV, OK, WI
1	AK, AL, DE, KY, MN, WA



The new RUSSELECTRIC 30-CYCLE TRANSFER SWITCHES...

Selective coordination just got a whole lot easier!



The National Electrical Code mandates selective coordination of overcurrent devices in emergency and legally required standby power systems.

UL labeled and listed for 30-cycle closing and withstand ratings based on testing per UL Standard 1008, new Russelectric RTS Series automatic transfer switches allow selective coordination of upstream overcurrent devices with downstream devices. By allowing those devices closest to the fault to interrupt power, these 30-cycle-rated switches dramatically simplify both the specification and coordination of overcurrent devices.

Russelectric RTS Series switches are available with continuous current ratings from 100 to 4000 A. No other manufacturer offers such a comprehensive line of 30-cycle-rated switches.

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Herb Whittall
EGSA Technical Advisor

NFPA 99 Sent Back to Committee

Delegates attending the June NFPA convention did something I have not heard of before: NFPA 99, *Health Care Facilities Code*—which was greatly changed greatly during this revision cycle—was voted down in the general session and sent back to the Technical Coordinating Committee (TCC). For the first time in my memory, the meetings during this cycle were not held in conjunction with the meetings for NFPA 110 *Standard for Emergency and Standby Power Systems* and NFPA 111 *Standard on Stored Electrical Energy, Emergency and Standby Power Systems*. Did that influence the vote? I don't know.

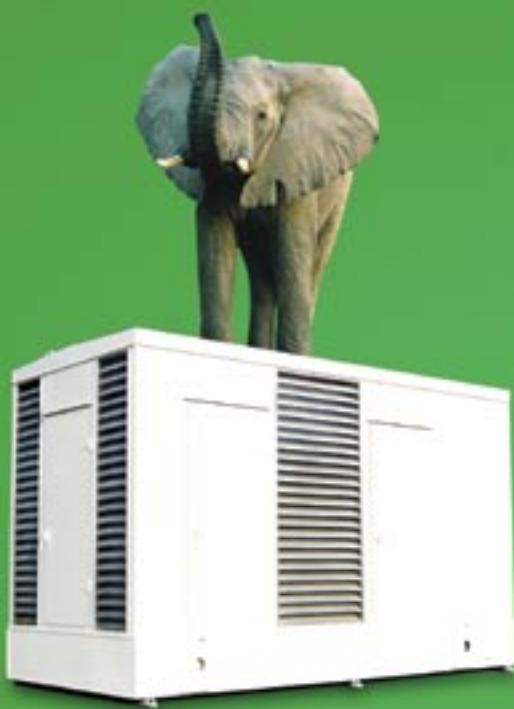
The major update to NFPA 99–2005 edition was supposed to more accurately reflect where and how medical care is delivered. Apparently, there were enough voters who felt that NFPA 99 still had too many unresolved issues and that it would be in NFPA's best interest to send it back to committee for resolution. The TCC is returning the document back to the various committees to

work on it with the hope that it can still be completed and issued within the 2011 time frame.

In the past, many members of NFPA 110 and NFPA 111 also served on some of the panels for NFPA 99. Because the venues for the meetings were different (Chicago and Boston), many did not attend both meetings. This fact may have prevented the issues mentioned from being satisfactorily resolved.

EGSA Codes & Standards Surveillance

At the EGSA Fall Conference in Colorado Springs, the Codes and Standards Surveillance Committee had 35 members in attendance. The meeting featured a presentation on Selective Coordination, and the Committee made final revisions to EGSA 200W-2009 *Recommended Practice for Seismic and Wind Certification for Compliance to the International Building Code (IBC) for Electrical Generating Systems and Various Components for Building Design Categories C, D, E or F per Chapter*



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resources, innovation, and willingness to design around your specific needs—even on the most challenging specifications—are why we are tops in the generator packaging industry. From start to finish, it's Chillicothe Metal Co., Inc. Call 309.274.5421 or visit us at cmcousa.com.



13 of ASCE 7 and Chapters 16 and 17 of the IBC Code. This took most of the time allotted so there was only sketchy information on other standards in progress around the world. Practice 200W-2009 was approved and released by the EGSA Board of Directors. It is free and available for download at the EGSA web site at www.EGSA.org.

News Bites

UL has advised me that they are trying to set up a meeting of the Standards Technical Panel (STP) to review the issues that have kept UL2201 Standard for RV/Portable Engine-Generator Assemblies from being adopted. The three dates suggested are in February and March next year in Chicago at the UL headquarters.

I received a disc from the International Code Council (ICC) with all of the pro-

posed changes to the 2009 editions of all ICC Codes, including the International Building Code (IBC). If you would like this copy, please contact me and I will send it to you.

I also received a notice for an NFPA seminar that will cover NFPA 70 E Electrical Safety in the Workplace. The seminar will be held December 17-18, 2009 at the International resort and Spa in Orlando, FL. Contact NFPA at 800-344-3555 to register for the seminar; call 407-352-1100 to reserve your hotel room. You can also take an online course on NFPA 70 E with NFPA's eLearning program. Visit nfpalearning.org for more information.

Thanks to EGSA's membership in SAE, I am a member of the group influencing the U.S. vote for items considered by the ISO and IEC under TC-70. Within the

last two months, I have voted for a Committee Draft: IEC 62502 Ed. 1.0 Analysis techniques for dependability – Even tree analysis. I voted against a new work item: IEC 56/1332/NP Dependability of Software Products containing reused Components–Requirements for Functionality and Tests. And I voted for a new work item ISO /TC70/SC Measurement procedure for exhaust silencers of internal combustion engines. This standard will specify test instruments, test conditions and test methods for exhaust silencers used on internal combustion engines defined in the ISO standard 3046-1.

If you have any questions or comments, email me at HWhittall@comcast.net. ■

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2009 EGSA Fall Technical & Marketing Conference Draws Rave Reviews

The Electrical Generating Systems Association (EGSA) held its 2009 Fall Technical & Marketing Conference at the Antlers Hilton in downtown Colorado Springs, CO, September 13-15. This year's program was particularly cohesive with speakers and their topics carefully selected to be of interest to virtually every member of the On-Site Power Industry.

In his opening keynote "Opportunities for Growth in the Current Economy," Peter Ricchiuti, Assistant Dean and Director of Research at the Tulane University's A.B. Freeman School of Business, entertained and informed his audience while outlining the shape of the impending economic recovery.

Ricchiuti is the founder of Tulane's highly acclaimed BURKENROAD REPORTS stock research program. He also served as the Louisiana State Treasurer and Chief Investment Officer. Currently, he teaches courses on the financial markets at Tulane University's A.B. Freeman School of Business. Editor's note: See Ricchiuti's article in the sidebar below.

In "Smart Grid Systems for the Battlefield," Michael C. Padden, Project Manager



Networking at this year's Fall Conference was energized by the presence of 35 first-time attendees and nine new EGSA Members. Above, President Greg Linton calls them to the dais to be recognized and welcomed by the crowd.

ager for Mobile Electric Power at the U.S. Department of Defense (DoD), outlined the DoD's future intent to develop a new architecture for deploying tactical electric power to the battlefield. The DoD will use "a holistic approach" for future architecture, said Padden, in an attempt to capture and include battlefield tactical power grids, intelligent power management, and power distribution and incorporate renewable technologies.

As the chartered Project Manager for Mobile Electric Power, Padden serves as the DoD Executive Agent to manage the coordinated Inter-Service effort for the development, acquisition and sustainment of DoD's tactical electric power generating sources. He is also currently serving as Co-Chair of EGSA's Government Relations Committee. Editor's note: See Padden's article in this issue of *Powerline*.

Continued on page 16

The Future is Not Cancelled

By Peter Ricchiuti, Tulane University

Over the past couple of years you've gone through hell and high water with both your business and personal investments. Don't give up now...we're beginning to see the recovery!

In fact, I think the recession actually ended this past summer. Several top leading economic indicators make me quite bullish on the future:

- The stock market has risen an impressive 60% since early March. The stock market is usually about six months ahead of the economy.
- Oil prices have doubled over the past few months. This says that world oil demand (driven by an improving economy) is headed up.
- The yield curve between rates offered on three month and ten year U.S.

treasury securities has grown to a positive 335 basis points. This usually points to an expanding economy.

- Credit markets are beginning to thaw. The rate difference between corporate and treasury securities has narrowed from 8.00% to just 3.85% in the past year. Economic optimism brings out an appetite for risk on the part of investors.

Many of TV's "talking heads" are mistakenly focused on the nation's unemployment rate. This is a lagging not leading economic indicator. Even if we're already out of the recession, unemployment numbers may look bleak through early 2010 as companies gradually bring back their workforces.

There are some troubling economic

issues still out there. I think that the U.S. dollar will continue to weaken and it's hard not to forecast a bit more inflation down the road. Additionally, some bubbles such as commercial real estate have yet to burst.

UNCERTAINTY CREATES OPPORTUNITY. These times allow leaders to pick up market share and successfully innovate. Be ready for what's ahead. Recessions always end and the economy always rises to a higher plateau. ■



Peter Ricchiuti

Editor's Note: Mr. Ricchiuti was the keynote speaker at the 2009 EGSA Fall Technical & Marketing Conference.

2009 FALL CONFERENCE PHOTOS



Ron and Dianne Schroeder.



Brian Berg, Bill K., Jim O'Roerke, Ernest Glaser and Dave Brown.



John and Debbie Kelly, Jr.



Walter and Abby Petty.



EGSA President Greg Linton and wife, Stacy.



Bobby McDonald and Diane Weldon.



Paula and Steve McQuaid.



Jennifer and Bill Pafford.



Rick Kremer, Al Prosser, Charlie Habich, Luke Jaynes and Seth Churches.



The Fly-Fishing Tournament featured spectacular scenery and great fishing, too!



Sue and Thomas Black.



Brenda and Ron Hartzel.



Steve Stoyanac and Tyson Salewski



Darell Struss helped entertain the crowd.



Charlie Habich stole the show.



Dennis and CeeCee Roundtree.



Lessie and John Hawkins.



David and Christine Ulmen.



This year's Fall Manufacturers Showcase boasted heavy traffic and high interest.

Continued from page 13

In his presentation "A Systems Approach to Energy," former astronaut Dr. Ronald Sega, Woodward Professor of Systems Engineering at Colorado State University (CSU) and Vice President for Energy, Environment and Applied Research at the Colorado State Research Foundation (CSURF), discussed how the U.S. Air Force is striving to "make energy a consideration in all we do."

According to Dr. Sega, the Air Force is accelerating the development and use of alternative synthetic fuel sources for aviation and renewable energy for military installations. Further, the military is working to enhance energy efficiency in aviation and infrastructure and mounting a campaign to promote a culture where Airmen conserve energy.

Dr. Sega drew on his insights and experience as a former Under Secretary for the U.S. Air Force and designated Department of Defense Executive Agent for Space. He noted that the Air Force has actively encouraged the use of alternative energy sources and, in fact, was the nation's largest single purchaser of renewable energy in FY05 with one million megawatt-hours purchased in FY05 and FY06.

In his "EGSA Pulse Report 2009" presentation, John Hoeft, Principal/Owner of Advanced Marketing & Technology Insight, presented the results of a recent EGSA survey conducted by the EGSA Market Trends Committee. The information also was published in the September/October issue of Powerline. Main conclusions from the survey included:

- 54% of respondents indicated either

no change or negative sales growth from 2008 to 2009.

- Over 41% of respondents expect their employee workforce to increase during the next year and 34.3% are planning for capacity increases.

In his presentation on EGSA's new Green Committee and its activities, Committee Chairman Michael Pope, Marketing Manager and Senior Sales Engineer for Süd-Chemie, Inc., discussed the outcome of the Committee's first meeting and outlined its initiatives for the coming months. The Committee's purpose, said Pope, is to "pursue, learn, share, and educate EGSA members regarding opportunities that exist in the area of emerging green technologies," including alternative fuels, emissions-related initiatives, regulation changes, funding sources and more.

In her presentation "Colorado's Experiences with Energy Project Stimulus Funding," Patti Case, Director of the Intermountain CHP Application Center and Vice President of ETC Group, LLC, outlined the U.S. Department of Energy's (DoE) currently available technical resources and stimulus funding for combined heat and power (CHP), district energy and waste heat energy systems, all of which often incorporate On-Site Power systems. Case provided an overview of the American Recovery and Reinvestment Act (ARRA) funding for Clean Energy Systems and of the DoE-sponsored Clean Energy Regional Application Centers and distributed information on the education opportunities, resources and technical assistance available through the Clean

Energy Centers. Editor's note: See Case's article in this issue of Powerline.

Finally, in "Applying Micro Turbines and Controls to Accommodate CHP Plants and Smart Grids," Timothy D. Tawoda, Founder & CEO of Preon, discussed the benefits of integrating microturbine-based CHP (MT CHP) plants and controls into new construction as a way to facilitate development of the smart grid. Tawoda noted that MT CHP plants outperform traditional reciprocating engine gen-sets. Traditional power plants, said Tawoda, deliver 33% of input energy while MT CHP plants deliver 75% of input energy. What's more, said Tawoda, traditional power plants require 2.27 times as much energy and, therefore, have a carbon footprint that is 2.72 times larger.

EGSA Manufacturers Showcase

In addition to the lineup of educational sessions, the conference included EGSA's highly successful Manufacturers Showcase. The exhibition setting allows for a more formal dialogue between EGSA-member manufacturers, attending Distributor/Dealers and manufacturer representatives. Raffles for \$100 in cash were held throughout each session of the Showcase.

EGSA will hold its 2010 Annual Spring Convention March 14-16 in St. Petersburg, FL at the Renaissance Vinoy Resort & Golf Club. Registration information will be posted on the EGSA web site at www.EGSA.org when it becomes available. ■

Editor's note: visit www.EGSA.org to see more photos of the EGSA Fall Conference.

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Defense Tactical Electric Power

A Partnered Approach to Enable Operational Capabilities

By Michael Padden, Department of Defense Project Manager, Mobile Electric Power



A five kilowatt generator is shown to the right in support of an Army platform-based capability.

In September 2009, I had the pleasure of speaking at the plenary session of the Electrical Generating Systems Association's (EGSA) Fall Technical and Marketing Conference in Colorado Springs. This article builds on that presentation by outlining some of the significant initiatives, challenges, and goals associated with the military's tactical electric power program.

It comes as no surprise that energy issues, whether installation or tactical, have moved to center stage in the national and military psyches over the past five to six years. Burgeoning costs, limited supply and availability, the impact on tactical operations (convos), global warming—all of these factors have made reducing fuel consumption a key strategy within the Department of

Defense (DoD) and Military Service's Energy Strategies and Implementation Plans. Clearly, opportunities exist with both conventional and alternative energy technologies to address these issues. But our ability to leverage such opportunities will depend on our ability to forge effective government and industry partnerships within the power and energy community if we are to support our nation's military personnel and their need for high quality, reliable tactical electric power.

As one of EGSAs founding members, the DoD Project Manager, Mobile Electric Power (PM-MEP) has been, and will continue to be, fully committed to our government/industry partnership. This partnership was recently strengthened by PM-MEP's appointment as

the co-chair of the EGSAs Government Relations Committee. Although the membership of EGSAs has grown dramatically in both numbers and diversity since its inception, PM-MEP's relationship with the Association has not wavered. This is an important forum to foster industry and military cooperation and coordination of the military's tactical electric power program. Specifically, PM-MEP uses its EGSAs membership as a mechanism to vet program requirements, continue professional development, solicit input on technology development, and keep EGSAs Members informed of upcoming business opportunities.

The office of the DoD PM-MEP was established over 40 years ago in response to the logistical challenges associated with the

proliferation of power generation equipment in Vietnam. The exorbitant demand for electric power in that theater of operations resulted in a hodge-podge of over 2,000 different makes and models of generators. The situation rapidly became un-supportable; not only were repair parts unavailable, but there was no interoperability among adjacent units—even within the same service.

In 1967, the DoD conducted a comprehensive Engine Generator Study to examine the power problems in Vietnam and concluded that the rampant proliferation of generator makes and models was the root cause. The DoD subsequently established a new policy, DoD Directive 4120.11 "Standardization of Mobile Electrical Generating Sources," to ensure that mobile power generation equipment would be standardized across the DoD to the practical degree. Moreover, it established the DoD PM-MEP and assigned it to the Army as executive agent. Finally, this directive, further codified in a Joint Technical Publication, established PM-MEP as the central authority for skid- and trailer-mounted power generation equip-

ment in the range of 500 watts (W) to 750 kilowatts (kW).

The first major effort of the new PM office was to standardize the existing fleet of generators. After evaluating performance and asset densities, the PM selected 69 different makes/models of existing generator sets, including both gasoline- and diesel-fueled sets plus multiple Power Unit (PU) and Power Plant (PP) configurations to serve as the "core" of the DoD initial Standard Family of Generator Sets.

The First Generation of Standard Military Generators

The next effort undertaken by the PM was to develop and establish the first true Standard Family of Generator Sets for DoD—what is now known as the Military Standard (MIL STD) family. Beginning development in the late 1960's, the new diesel-fueled 3kW-200kW generator sets were developed and designed by the government, and over 90,000 were procured from the industry between 1968 and 1987. The new MIL STD Family further reduced the number of makes/models of generator sets to 37, which included both legacy gas-

oline engine-driven and new diesel engine-driven generator sets from 0.5 to 750kW. This MIL STD Family was the workhorse of the services throughout the 1970's and into the late 1990's, with distinguished service in Grenada, Panama, Somalia and Desert Storm. Over time, these generator sets have been replaced with more modern units, with the MIL STDs being officially declared obsolete in 2009.

Strategic Importance of Tactical Electric Power

There is no doubt that three of the most common themes to emerge from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) have been the demand for protection from improvised explosive devices (IEDs), reduced fuel consumption (and convoys) and a growing need for more electric power.

The explosion of information technology systems in the U.S. Army over the past 15 years has vastly improved our operational capabilities. At the same time, it has driven power consumption up almost exponentially. We have seen this trend from the Soldier systems, in Command,

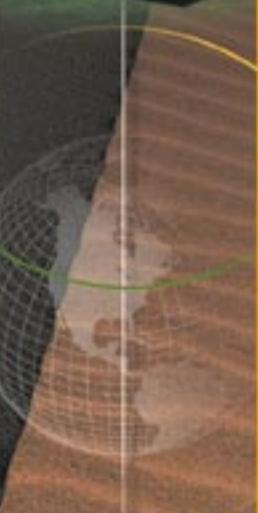


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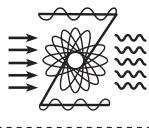

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Control, Communications, Computers, Information, Surveillance and Recognition (C4ISR) systems, in weapons and even in logistics support. Yet comparatively speaking, the increased power requirements at Forward Operation Bases (FOB), Combat Outposts (COP) and Joint Security Stations (JSS) is even greater due to their function as semi-permanent installations. The vast majority of the power requirements at these installations come from the need to power sustainment operations such as living quarters, kitchens, showers, laundries, water purification, medical facilities and environmental control systems (e.g., HVAC). Traditionally, 50-70 percent of power on the battlefield is consumed in environmental control systems. Yet in OIF/OEF some have suggested that 90 percent of the power in OIF FOBs supports air conditioning alone.

In 2008, a Defense Science Board Task Force report on DoD Energy Strategy identified generators as the Army's single largest consumer of fuel on the battlefield during wartime. It is estimated that over 357 million gallons of fuel is required for generators in a wartime operational tempo—more than combat vehicles, tactical vehicles or combat aircraft. As generators are employed extensively in remote locations and fueled by resupply vehicles that are often the focus improvised explosive devices and other insurgent attacks, it is imperative to reduce fuel consumption for electric power generation on the battlefield.

Current Tactical Power Landscape

The mission to provide modern standardized mobile power generation across the DoD is very important not only for information technology, but for nearly every aspect of the battlefield. This includes

semi-permanent/permanent hospitals, air bases, and port facilities as well as tactical operations spanning both symmetric and asymmetric warfare. Satisfying such diverse requirements requires a delicate balance between continually evolving requirements and the limited resources available to modernize and standardize the generator fleet.

One of the most successful tools to facilitate this is through leveraging industry and quickly developing improvements in commercial technology. Some of the most promising of these improvements are in the areas of intelligent digital controls, high-speed engines, power electronics and diagnostics and prognostics. All of these technologies are included in our on-going standardization and modernization efforts. These improvements will lead to lighter, more efficient generator sets that are considerably more reliable than their predecessors.

Changing requirements and maintainability problems with the MIL STD Family led to a need for generator sets with an emphasis on greater mobility, improved reliability/maintainability, enhanced survivability (e.g., Electromagnetic Pulse (EMP)), reduced infrared and acoustic signatures, and lower acquisition, operation and support (O&S) costs.

This new generation, called Tactical Quiet Generators (TQG), serves as the backbone of the U.S. military's current fleet of tactical power sources. Available in 3 kW, 5 kW, 10 kW, 15kW, 30 kW, 60 kW, 100 kW and 200 kW sizes as skid-mounted or trailer-mounted configurations, the TQGs offer "single-fuel" compliance (operating on diesel or jet propulsion fuels); significantly improved survivability, mobility, reliability and maintainability; and reduced





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noise (less than 70 dbA—quiet enough to reduce detection ranges from over a mile to less than 400 meters). Moreover, the sets are significantly less detectable from the front and sides by ground or airborne infrared sights. Weight and size have been reduced by 20 percent, thus further improving both mobility and deployment.

TQG Production and Fielding Surge

To meet the growing demand for tactical electric power in OIF/OEF, PM-MEP initiated a massive effort to surge production of the current Tactical Quiet Generators—not an insignificant challenge. By establishing a close partnership with the prime contractors based on mutual respect and cooperation, collaboration, and shared goals, the MEP team was able to accelerate production from 400 to over 1,000 sets per month without increasing unit prices or requiring government funding of capital costs. The MEP office worked closely with the prime and major component suppliers to ensure no production stoppages while simultaneously increasing depot operations to handle the increased volume and accelerating the placement of units in the field. We achieved our target of 1000 units per month recently and, more importantly, have been able to rapidly field these sets in support of our Soldiers in the field.

During the troops surge in Afghanistan, PM-MEP used 12 U.S. Air Force strategic lift aircraft to deliver 434 TQGs to the region, ranging in size from 3 to 100kW. Close coordination with the transportation community ensured equipment delivery in less than 11 days—a vast improvement on the routine 60-70 day delivery period.

Implementation of the Command Post Central Power Solution (CPS)

For decades, Army doctrine and organizational structure have used multiple small generators to independently power various sections of a typical Command Post (CP), often without backup or reserves.

To improve power management and distribution, reduce fuel consumption, and enhance maintenance and operational support, the PM-MEP proposed a new electric power paradigm called Command Post Central Power (CPS). This approach provides power via a centralized distribution grid using several larger generators and distribution equipment to replace numerous smaller generators, thereby reducing Army Division annual maintenance by 71,000 man hours; 2,400 tons of carbon dioxide emissions; and 275,000 gallons of fuel. When CPS is fielded to all active Army components by 2012, the net present value savings will be \$5 million for a 15 year peacetime scenario and \$150 million for a 10-year peacetime/five-year, low-intensity conflict scenario.

Battlefield Power Integration

In early 2008, PM-MEP highlighted the difficulties of providing power and energy across a wide array of systems and platforms and suggested an even more holistic strategy. On May 22, 2008, the Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASA ALT) formally designated PM-MEP as the Army's Systems of Systems Integrator for Battlefield Electric Power and expanded its charter (for the Army) across the entire power spectrum. It requires Program Executive Offices (PEO) and PMs to

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work with PM-MEP to ensure effective and cost efficient development of standardized power sources. In the early stages of tackling this complex problem, the Project Office initiated the development of a comprehensive database for power consumption/demand requirements. Once completed and analyzed PM-MEP will develop, coordinate and execute an integrated battlefield electric power architecture. The paybacks behind this approach are literally incalculable, with the potential for significant acquisition and logistics support cost reductions.

Tactical Electric Power Vision

Gone are the days when the military could afford to have dedicated, underutilized generators supporting the battlefield. Although conventional, engine driven power generation sources will likely remain the backbone of the military's tactical electric power fleet for the near term and beyond, improvements can, and must, be made in how tactical electric power is generated and distributed on the battlefield. Using a holistic approach to power generation and distribution, the vision is to have a fully integrated tactical electric power architecture. This would include conventional and alternative energy power sources integrated in a plug-and-play capacity with scalable micro-grids and intelligent power management. The potential benefits of this approach are tremendous and offer significant improvements in capabilities, fuel efficiency, and the logistics footprint just to name just a few. To realize this vision, advancements are, and must continue to be made in conventional electric power generation, alternative/renewable electric power generation, and intelligent power management and distribution.



A typical full fleet of 100 kilowatt generators for a combat support hospital are shown at Fort Lewis, Wash.

Future Electric Power Generation

Advanced Medium Mobile Power Sources (AMMPS) (5-60kW): The AMMPS is the 3rd generation of skid and trailer-mounted military generators in the 5-60kW range. The program is currently in System Development and Demonstration and a Full Rate Production Milestone Decision is planned for the 4th Quarter 2010. AMMPS will provide improvements over the TQGs they will replace in reliability, maintainability, and especially in fuel consumption—resulting in significantly reduced operation and support costs for Department of Defense. AMMPS will begin

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A Patriot launcher tube is shown at the back of a platform. On the front is a 15 kilowatt, 400 hertz Tactical Quiet Generator.

production in 2011 and be procured by all four of the military Services.

Large Advanced Power Systems (LAMPS) (100 kW and 200 kW): LAMPS will be the next generation of 100kW and 200kW generators. This modernization effort will replace higher maintenance cost TQGs with more fuel efficient, higher reliability, and improved maintainability, and reduced emissions generators. In 2010, a decision will be made to begin System Development and Demonstration. Production of the LAMPS is planned to begin production in 2014 and will also be procured by all four military Services.

Small Tactical Electric Power (STEP) (Below 5 kW): STEP is a modernization program that will replace the current 2 kW Military Tactical Generator (MTG) and the 3 kW TQG. Although the specific sizes of generators have not been finalized yet, the systems will be manportable and skid mounted generators that will improve

reliability, reduce fuel consumption, decrease weight and provide many other benefits over the generators they replace. STEP will begin development in 2012 with production planned for 2015. All four Services will procure STEP systems.

Alternative/Renewable Power

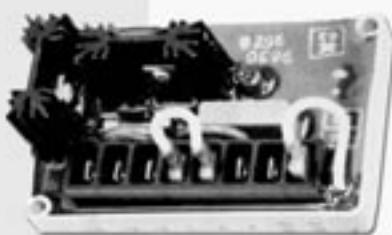
Alternative energy sources clearly have a role in the present and future Army. However, it is unlikely that they will provide the huge near term fuel reduction benefits some would suggest. Large scale, solar farms of >1MW are unlikely to be operationally viable or cost-effective for tactical/theater camps or installations—due to low efficiencies, cost, space and energy storage requirements, and the need for expanded security. Yet, there are applications where alternative sources make eminent sense, and will provide enhanced operational capability. For example, small, man-portable solar panels (which are currently deployed)

provide Soldiers and small units the ability to recharge batteries, thereby reducing the logistics burden. Small, isolated outposts that rely on unsecure lines of communication for fuel convoys can leverage solar technologies to provide limited, critical C4ISR support—especially communications and sensors. Yet, while many of these alternative energy technologies are rapidly maturing for fixed installations applications, the requirements for operational systems are vastly different. Continued development is required to develop alternative sources that are more efficient, lighter, more durable, and more cost effective. In the end the goal is to untether Army from the logistics tail—70 percent of which is fuel and water distribution. It is unlikely that we will ever achieve total energy independence, but future improvements will continue to reduce dependence on fossil fuels and enhance tactical operational capabilities.

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ity Technology Demonstration (JCTD): The NZ+ JCTD is evaluating a number of technologies aimed at optimizing the use of alternative energies and reduce energy consumption. PM-MEP is the Umbrella Transition Manager for the NZ+ JCTD which will demonstrate a Forward Operating Base (FOB) operating on reduced fuel consumption, with more efficient power distribution, and utilizing alternative energy sources. The emphasis will be on replacing temporary living, office, and operational facilities with enduring energy efficient structures and integrating renewable energy technologies with improved energy generation to power those structures. An intelligent power distribution system that measures, analyzes and connects power flow will effectively and efficiently manage source and demand management.

Technology Demonstration Programs: The PM-MEP is currently conducting a variety of demonstrations to explore and validate a number of new technologies for potential system development. These joint-service interest initiatives including: hybrid power prototypes with energy storage capability, co-generation systems (using waste heat to produce either electricity or operate environmental control units), and integrated photovoltaic systems. In 2009, activities included demonstration of a “green Command Post” that integrated photovoltaic systems from three vendors. Plans for 2010 include the demonstration of two integrated power source/energy storage systems. Over the last decade we have seen increased interest in non-battery power sources less than 1 kW, thus we will demonstrate and evaluate a small, lightweight 1 kW generator that runs on JP-8 in a field exercise. An improved version of 100 Amp intelligent power distribution module which incorporates automatic phase balancing will be demonstrated by two to three vendors in a competitive run-off. Each of these programs will be evaluated for technological readiness and military utility, and pursued further given a valid user requirement and a supporting business case analysis.

Intelligent Power Management and Distribution

Hybrid Intelligent Power (HI-Power) Program: The HI-Power program is a DoD-funded initiative to identify methods to enhance energy security through the use of intelligent power management and the integration of renewable energy technologies to reduce fuel and energy consumption in tactical operational environments. The HI-Power architecture will establish a paradigm shift from stove-piped power generation to integrated power management in an operational micro-grid. The principal requirement of this architecture is the ability to incorporate and manage diverse power sources seamlessly—including solar, wind, vehicles (DC power), batteries, commercial “pole” power, and military or commercial generators. The intelligent control system will allow autonomous start-stop of the power sources to meet demand (load) while incorporating graceful degradation (in case of partial grid or device failure), self-learning algorithms, and simplified operator controls. The system will reduce operations and support by 25 percent and fuel consumption by 17-40 percent. It will be modular and configurable for different power levels, and reduce emissions and noise. Moreover, its flexible architecture will enable seamless integration of current and future renewable energy sources, such as solar and wind power.



Warfighters from the Army and Marines use a 30 kilowatt generator in a joint exercise.

HI-Power is being designed to be highly flexible and configurable for a variety of applications and organizational units. While some portions of it might be suitable down to battalion level, the major benefits of the system will be at locations with higher power demands, such as Brigade/Division Command Posts, Combat Support Hospitals, Force Provider Modules. Because HI-Power will be modular, it will be feasible to deploy sub-sets of the HI-Power system to small units, forward deployed units or combat outposts. However, HI-Power, in its tactical configuration, is not designed to provide micro-grids for large scale semi-fixed installations or Forward Operating Bases where power requirements may exceed several mega-watts. However, the intelligent power management approach is scalable from Command Posts to Combat Outposts to Forward Operating Bases to installations.

Conclusion

These are truly dynamic times for the power and energy community. Never before has there been more interest in power generation and distribution—from our nation’s infrastructure to our military’s battlefields. The new administration, Congress, DoD, and service’s are fully committed to improving energy security by reducing our dependence on fossil fuels, reducing demand, and enhancing efficiency to reduce consumption. Clearly, opportunities exist in both the commercial sector and the military to meet these challenges. These challenges can best be addressed by maintaining the robust, cooperative government/industry partnership that EGSA has fostered. Only then can we ensure our military’s men and women in uniform continue to receive the world’s best and most reliable power generation equipment—they deserve nothing less.

If you would like additional information on the military’s tactical electric power program, I encourage you to visit our Web site at www.pm-mep.army.mil. If you would like to comment on this article, or contact me directly to offer suggestions on potential tactical electric power improvements, I welcome you to do so via e-mail at michael.padden@us.army.mil. ■

Editor’s Note: Mr. Padden was a featured speaker at the 2009 EGSA Fall Technical & Marketing Conference in Colorado Springs, CO.

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Resources for Clean Energy Project Evaluation and Implementation

By Christine Hurley Brinker, Program Associate and Patti Case, Director
U.S. Department of Energy Intermountain Regional Clean Energy Application Center

The U.S. Department of Energy's Regional Clean Energy Application Centers (known in shorthand as the RACs) have been working with local partners to build up the market for clean and well-designed combined heat and power (CHP) since the beginning of the decade. Starting this fall, the RACs are also adding further emphasis on waste heat recovery and district energy.

This article is designed to give you an inside look at the RACs and how they work hand-in-hand with project developers, local regulators, and end-users to facilitate more clean energy installations. We'll also take a look at what's been accomplished and the direction CHP markets may be headed.

Building a Targeted Regional Presence for CHP Issues

At the National CHP Roadmap Workshop in October 2000, a group of over 50 CHP companies and other stakeholders set an ambitious goal of doubling the amount of installed CHP from 46 GW in 1998 to 92 GW by 2010, and laid out the steps necessary to

reach that goal. At that meeting, they determined that local barriers were preventing significant expansion of CHP. However, they also determined that trying to change those barriers state-by-state and city-by-city would be a near-impossible task for the Washington-based Department of Energy (DoE).

According to Ted Bronson, President of Power Equipment Associates and the coordinator of all the Regional Clean Energy Application Centers since their founding, "It was apparent in the discussions with the industry that there just wasn't enough local, regional presence. There was a lot of trouble getting projects through. Regulatory agencies didn't understand the benefits, and there were unnecessary problems with connecting to the grid. A lot of the architecture and engineering firms didn't fully understand the technology, and there was a lack of awareness among key end-users. So the idea came up at that roadmap workshop that we needed to get teams out to educate people and help get projects off the ground."

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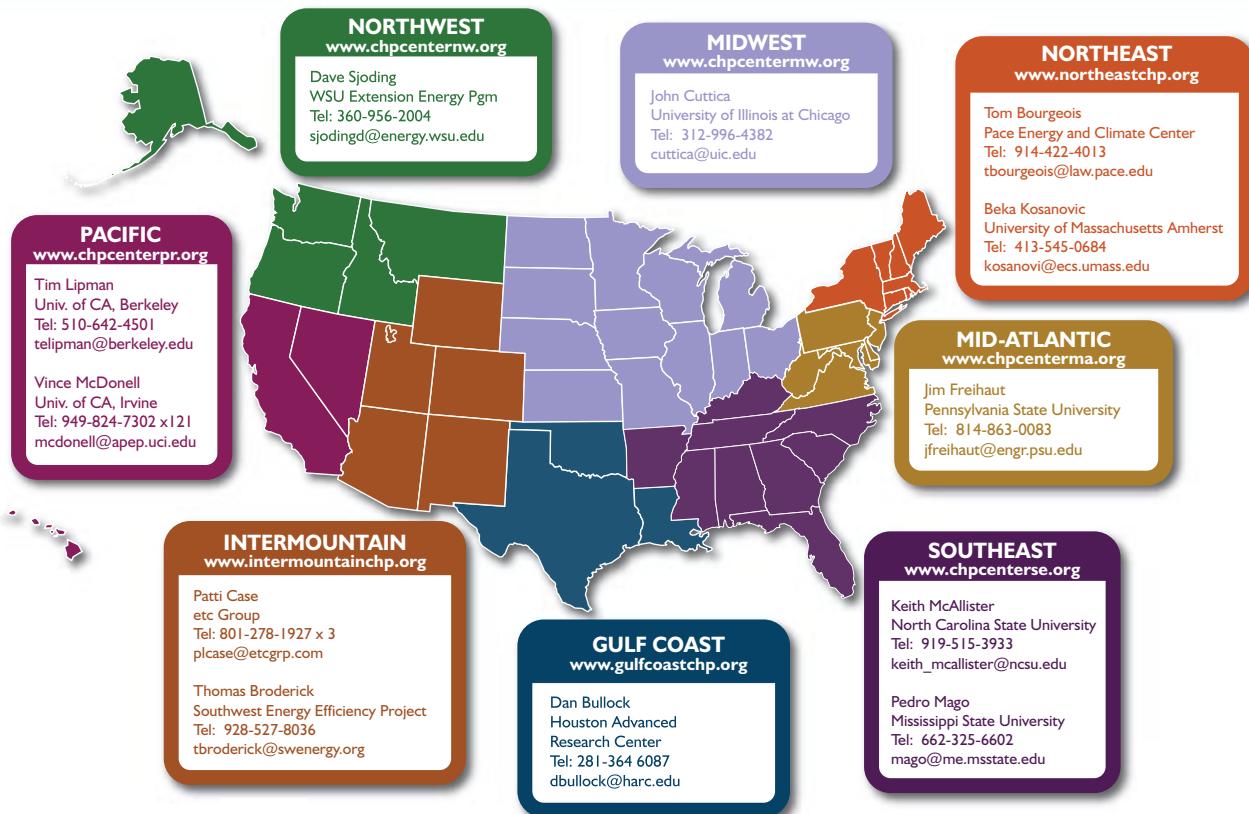
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 E-mail: Patricia.Garland@ee.doe.gov

There are eight regional application centers covering all parts of the country. Many, though not all, are hosted at university-affiliated research centers. They all work in conjunction with local partners and stakeholders, and welcome new collaborations as well. Stakeholders include equipment manufacturers, project developers, state energy offices, industrial assessment centers, utilities, clean energy advocates, and more.

In response, the DoE launched a pilot CHP Regional Application Center in the Midwest, hosted by the University of Illinois-Chicago's Energy Resources Center, to test the concept and develop protocols for other centers. Finding it successful and effective, two years later the DoE launched seven more centers covering the remaining regions of the country.

The Tasks at Hand

"When the RACs were formed, there was a focus on getting it done in the local market," says Dave Sjoding of the Northwest Regional Clean Energy Application Center and the Washington State University Energy Extension Program. Each center therefore engages in whatever is most ap-

propriate for increasing the amount of CHP installed in their region, ending up with a combination of education and awareness, technical assistance for potential projects and educational support relating to regulatory issues.

On the education and outreach side, the RACs work to inform prospective CHP users on the benefits, business models and resources available for their specific application. Like project developers, the RACs work to broaden the awareness of CHP, correct misperceptions in the marketplace and increase the chances of successful projects. These efforts can take the form of workshops, trainings, webinars, websites, or one-on-one advisory. Vince McDonnell of the Pacific Regional Clean Energy Ap-

plication Center and the University of California-Irvine notes, "In the past year, we've done several different workshops that were oriented towards end-users in particular markets and how CHP can fit into those applications. For example, one was on the specific needs of food and grocery stores, another was for data centers, and another was on waste heat recovery from industrial plants."

The Midwest Region Clean Energy Application Center was one of several RACs to provide workshops and additional educational resources on running CHP on alternative fuels such as digester gas, landfill gas, ethanol plants, corn stalks or other forms of biomass.

John Cuttica, director of the Midwest

Status Check

The CHP industry in the U.S. is set to either meet or exceed the goal of doubling installed CHP capacity from 46 GW in 1998 to 92 GW by 2010. Last year saw 85 GW of installed CHP capacity, representing nine percent of the total U.S. generating capacity.

Now that the previous goal is nearly accomplished and its "expiration date" of 2010 is nearly upon us, it is time to set new targets. As proposed in a recent Department of Energy report, "A Decade of Progress, a Vision for the Future," DOE is establishing a new target: ramping up the implementation of CHP to account for 20% of U.S. electric generating capacity by 2030.

This target could result in 240,900 MW of CHP, reduced annual energy consumption of 5.3 quads, total annual CO₂ reduction of 848 million metric tons, and significant efficiency improvements. It would be equivalent to 154 million cars taken off the road.

To achieve these targets, the DOE CHP program plans to address aggressive growth in all markets, including large CHP (greater than 20 MW), mid-size CHP (1-20 MW) and small CHP (below 1 MW).

Center, noted, "We have been averaging 45-60 percent of the attendees at workshops actually being potential purchasers or end-users, and many follow up with us

afterwards with additional questions."

In fact, the RACs have hosted over 120 end-user workshops since their founding with an estimated 7,000 attendees.

Technical Assistance to Move Projects Forward

Equally important to educating groups of end-users is helping individual potential projects "take the next step," whether they are at the very beginning of considering a project or somewhere in the process of implementation or evaluation. This can involve first or second level site screenings, tariff/rate assessments, technical equipment questions, or an independent, unbiased review of a project proposal. Most of these services are provided free of charge as part of the RACs' mission.

While investment-grade assessments and feasibility studies are left to the private sector, the RACs help uncertain or uncommitted companies figure out if it is worth pursuing CHP further and whether they should invest in the next level of evaluation.

For instance, in the past year the Southeast Regional Clean Energy Application Center—based jointly at North Carolina State University and Mississippi State Uni-

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versity—helped some of their local industrial firms with:

- An assessment showing that a 1 MW CHP system, fueled by wood shavings, would meet the heating and electrical needs of lumber facility in Mississippi with a 2.3 year payback.
- An assessment for a biofuels facility in North Carolina showing that it could use waste grease to fuel a 600-kW CHP system, with a 3.2 year payback.
- A study showing that a pharmaceutical company could reduce its energy costs by installing a CHP system fueled by the gas of an adjacent landfill; and
- An assessment for the a 50 million gallons-per-day wastewater treatment facility in North Carolina showing potential annual savings of \$600,000 and an 8.7 year payback by installing a 1.6 MW reciprocating engine.

"Once we do a quick site analysis for someone," says John Cuttica of the Midwest center, "we will suggest that if it looks favorable to them, they should proceed to the next step. We can help them put an

RFP together to find a good engineering firm [to do a more thorough investment grade site analysis], as well as provide technical support as they talk to an engineering firm."

Frequently, though, projects need assistance further along in the process. "The RACs are often involved in trouble-shooting projects," says Dave Sjoding of the Northwest center. "A project gets started and then gets hung up. There can be a wide range of things that can bog down a project, and that is when we will get the call. There are usually ways to resolve whatever issue it is, and get the project back on track. We tend to be very tenacious on these projects—it may take awhile to get them up and running, but the tenacity really pays its dividends."

For example, he says, "We've had a focus in the Northwest on pulp and paper mills. The latest project to come online is a 60-MW system at Simpson Tacoma Kraft. They wheel the power from the state of Washington to California. CHP wheeling was one of the unique troubleshooting

issues we helped with, so they could take advantage of the difference in local power prices and make the economics better." That project came online in August 2009.

On the other hand, if a project DoEs not make sense from either a technical or economic viewpoint, the RAC will say that as well. John Cuttica of the Midwest center echoes the views of the other RACs by saying, "CHP is not the silver bullet, and it DoEs not make sense in all applications. When it DoEs not make sense, we will tell them that."

Getting Regulatory Ducks in a Row

Sometimes an otherwise technically sound and economically sound project can come up against regulatory barriers, and this is a third area where the RACs are active. While the RACs are not involved in lobbying or other pure advocacy work—leaving that to trade associations and individual companies—they are very involved in educating regulatory and legislative members about why CHP is an effective clean energy policy solution and

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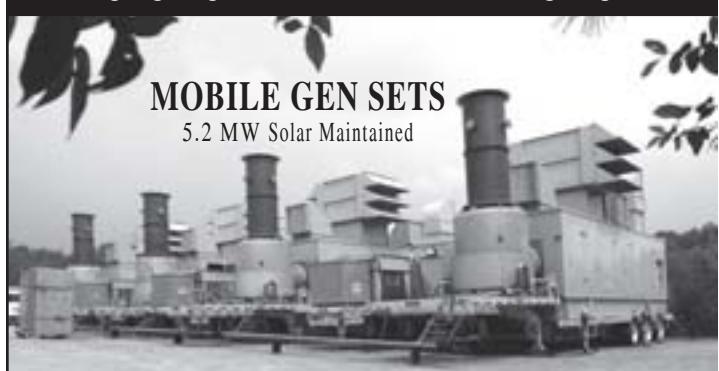
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how particular barriers can be removed. For example, RAC involvement in various regions has led to:

- A Connecticut Distributed Generation Program to incentivize CHP to help with grid congestion issues;
- A new Texas law requires all critical government buildings to obtain a CHP feasibility assessment prior to construction or major renovation;
- A North Carolina Renewable Energy and Energy Efficiency Portfolio Standard that includes CHP as either a renewable (if run on a renewable fuel) or as energy efficiency;
- A 50 percent business energy tax credit in Oregon; and
- Funding 22 CHP projects through Alaska's \$25 million Energy Freedom Fund.

Some of the regions also have active stakeholder groups, called Initiatives, that work alongside their RAC on addressing barriers. Equipment manufacturers, project developers, architectural and engineering firms, and environmental advocates usually comprise the Initiatives.

The RACs and the Initiatives have "really helped raise awareness among regulators and policymakers on how CHP can help create jobs for a state, how it can help them get a more diversified energy supply, and how it can provide more effective solutions for a state's citizens," says Bronson.

State, Federal Grants & Incentives

Given the tough economic conditions for new clean energy installations, another aspect of facilitating market development and reducing barriers is to make potential end-users aware of all available grants and incentives for which they might qualify, thus reducing the total cost of a system. The RACs supplement the grant information in databases such as the DSIRE database (www.dsireusa.org) with knowledge of any other existing or upcoming state, local or utility incentives.

For example, some states are now including waste heat recovery as a renewable energy eligible for tax incentives, renewable energy credits (RECs), carbon credits, or other perks. Other states have grants or tax incentives for systems installed in specific

areas or possessing certain qualities, such as the Colorado Department of Agriculture's funding to promote energy-related projects beneficial to Colorado's agriculture industry, or the Colorado Carbon Fund's grants for high quality greenhouse gas offset projects located in Colorado—both of which are not specifically marked for CHP but could be used as such.

Federal-level incentives are available, too, but can be complicated for potential energy users to dissect. Using American Recovery and Reinvestment Act (ARRA) funding, companies installing clean energy projects can currently get a cash grant/rebate equal to 30 percent of the cost of building a renewable-energy facility, or 10 percent of the cost of a non-renewable CHP system, or take an investment tax credit. (Waste heat recovery currently falls under the non-renewable category, something which CHP trade groups and companies are trying to change). Payment will be awarded 60 days after an application is approved. ARRA also extended the 5 year bonus depreciation schedule (which allows 50% depreciation in the first year with the remainder over the

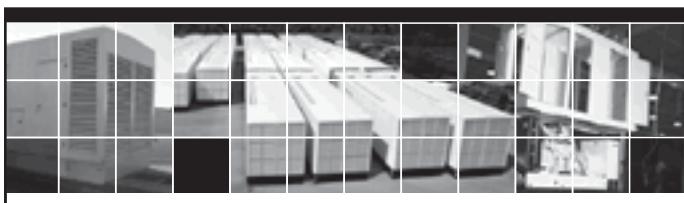
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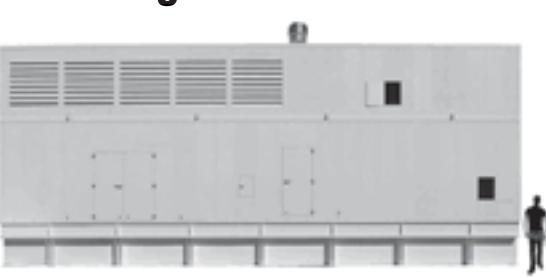
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next 4 years) though 2010.

The Department of Energy also marked \$156 million in Recovery Act funds for direct grants to CHP, waste heat recovery, district energy, and industrial energy efficiency projects, with applicants giving at least a 50 percent cost share. Applications were due this past summer, and at the time of writing, the awardees had not yet been announced but were expected soon. DoE did share, however, that they received over \$9 billion in applications, one of the largest over-subscriptions they have seen. This highlights the large amount of interest in clean energy systems, especially when incentives are made available.

What Just Happened?

Each region says it has noticed a shift in attitude regarding CHP, waste heat recovery, and district energy, just over the past few years. "Before 2003, CHP was a sort of forgotten or ignored opportunity. Now we have a regional, multi-state approach throughout the country showing this forgotten or ignored opportunity forward," said Dave Sjoding of the Northwest center.

"I think people have recognized the value of the energy efficiency side of it, more than they did 10 years ago. The recent concerns about carbon and greenhouse gasses have re-energized our region and probably the others. California has very aggressive greenhouse gas legislation in place, and through that, there has been

recognition that CHP is a low-hanging fruit. California is hoping they can see early progress directly because of CHP. The CHP industry's past education efforts are paying off now—people see it as something you can go to for near-term gains."

Looking Forward for CHP

Although barriers are often local in scope, opportunities are often local as well. Here are some of the RAC director's thoughts on what holds promise in their area, and where extra emphasis will be put:

"One change we've seen in the Midwest is that the spark spread—the difference between the price of electricity and the price of fuel that you'd use for CHP—has not been sufficient enough to really justify economically a lot of natural gas-fired CHP. Instead of packing up our tent and going home, we're looking at alternative fuels. That interest has picked up. We haven't seen a tremendous amount of installations, but as you know, it takes three to five years for a lot of these installations to really take hold," says Cuttica.

In the Pacific region, "We are going to continue to focus on the cooling side of the CHP equation, and on better integrating CHP into the built environment. There is a lot of potential market in office buildings in our region. And of course, in California, all installations have to be ultra-clean," says McDonnell. They are also working

on a study on feed-in tariffs, and what their impact would be under various rate scenarios.

An immediate focus in the Northwest will be on waste heat recovery. The Northwest center is preparing a set of four fact sheets on waste heat recovery that should be published soon. "It makes no sense at all to watch all those BTUs go up the stack. Waste heat is such a waste, to put it bluntly. You've already taken all the environmental hit. It's basically a free fuel, other than the maintenance," says Sjoding. He adds, "We are going to highlight the job preservation and economic development sides of it, to help ensure long-term survival of our industrial base."

Conclusion

A regional approach is showing positive gains for building CHP markets, awareness, and favorable regulatory policies. Equipment manufacturers, project developers, architectural and engineering firms, and other stakeholders are encouraged to stay in touch and involved with the efforts of the RACs in their region, together reaching for the DoE's next goal of CHP accounting for 20 percent of U.S. electric generating capacity by 2030. ■

Editor's Note: Ms. Case was a featured speaker at the 2009 EGSA Fall Technical & Marketing Conference in Colorado Springs, CO.



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POWER-GEN International Returns to Las Vegas



All bets are on Las Vegas as the On-Site Power Industry gears up for the biggest ticket of the season: POWER-GEN International 2009, to be held December 8-10 at the Las Vegas Convention Center. The 21st annual event is expected to draw more than 18,000 power professionals from 76 countries and 1,200 exhibiting companies. This year, official buyer delegations from Mongolia, Turkey, Korea, Paraguay, Latvia, South Africa, China, Russia, Ukraine, Ecuador, Brazil, Bulgaria, Cyprus, Poland, Kuwait, Venezuela, Pakistan, Austria, Croatia, Czech Republic, Greece, Kazakhstan, Romania, Slovakia, Germany, Iraq, and

Saudi Arabia will attend, thus making POWER-GEN International 2009 a truly international event. The Electrical Generating Systems Association (EGSA) will again feature its highly successful On-Site Power Pavilion, a "show within a show" that offers a focus on On-Site Power Generation that is unequaled in the industry.

According to an onsite survey conducted at POWER-GEN International 2008, 60% of POWER-GEN International attendees don't attend any other trade shows, making it the only show they attend all year. Some 55% of attendees plan to do business onsite with at least 5 exhibitors; 66% of attend-

ees either recommend or make the final decision in the purchase of products and services; and 75% of attendees indicated their expectations were for "doing business with a supplier" while at POWER-GEN International.

With close to one million square feet of exhibit space, POWER-GEN International maintains its position as the biggest—and most important—of power industry events. By extension, that makes the EGSA On-Site Power Pavilion—located within the heart of the POWER-GEN show—the most important On-Site Power exhibition of the year as well.

Conference Program

This year's On-Site Power session track touches on a wide variety of issues, trends and topics. From achieving grid independence to distributed energy and technological innovation, POWER-GEN's program often sets the market's tone for months to come.

The fast-paced, three-day information exchange is designed to share practical experiences, knowledge and ideas on the latest power industry trends and challenges. Attendees will have ample opportunity to network and learn from hundreds of experts about the technologies and trends on the forefront of the On-Site Power Industry's future.

EGSA Events

EGSA will hold its final Advanced On-Site Power Generation School program December 7-10 concurrently with POWER-GEN International in Las Vegas, NV. In comparison to the Basic School, the Advanced School will offer more highly technical and in-depth coverage of the equipment. The Advanced School is designed for those who have attended the EGSA Basic On-Site Power Generation School; those who are employed in Engineering, Project Management, or Service positions; and for those with over three years working in the industry.



With close to one million square feet of exhibit space, POWER-GEN International maintains its position as the biggest—and most important—of power industry events. Photos courtesy of Las Vegas Bureau.

Finally, EGSA will hold its annual On-Site Power Reception Tuesday, December 8, 2009 from 6:15-8:00 p.m. in Ballroom D at the Las Vegas Hilton. The registration fee of \$50 per person includes hors d'oeuvres and two drink tickets for beverages of your

choice. The annual event provides On-Site Power Professionals with an opportunity to network in a relaxed atmosphere away from the hectic show floor. For complete information, visit www.EGSA.org ■

On-Site Power Conference Track

Net Zero: Blending Technologies to Achieve Grid Independence

Chair: Andrew Ulavege, Enercon Engineering Inc.

Co-chair: Michael Clark, PI Encorp LLC

A discussion of the regulatory, technical and financial drivers influencing the recent proliferation of net-zero business models and a look at specific projects that blend of on-site generation assets. This comprehensive overview will explore the emerging trend through which traditional and advanced technologies are blended to achieve a net zero power transfer from the grid.

- Overview of Current Microturbine Technology; Stephen Gillette, Capstone Turbine Corp.
- Chicago Police Station Independence from Grid; Timothy Tawoda, Preon Power (invited)
- FortZed, a 45 MW "Net Zero" Zone in Fort Collins, CO; Paul Johnson, Woodward (invited)
- Approaching Grid Independence; Ed Henderson, STC Engineering

Panel Discussion: How Distributed Energy Technologies Will Integrate With Tomorrow's "Smart Grid"

Chair: Justin Rathke, Capstone Turbine Corp.

Co-chair: Joseph Hafich, Emergency Systems Service Co.

Major smart grid players from policy making to power generation to transmission and ICT will provide their perspectives on how distributed generation will power our homes and businesses in a smart grid. The session will also provide an explanation of what "smart grid" means for the industry and society at large, including how federal Stimulus money will help spur development.

- Gary Rackliffe, ABB Inc.
- Ray King, Microsoft
- Laurent Demortier, Alstom
- Bruce Hedman, ICF Consulting International
- Thomas Basso, NREL

Panel Discussion: The 2010 ESCO Model—How to Overcome the Capital Cost Hurdle

Chair: John Hoeft, Advanced Marketing Insights

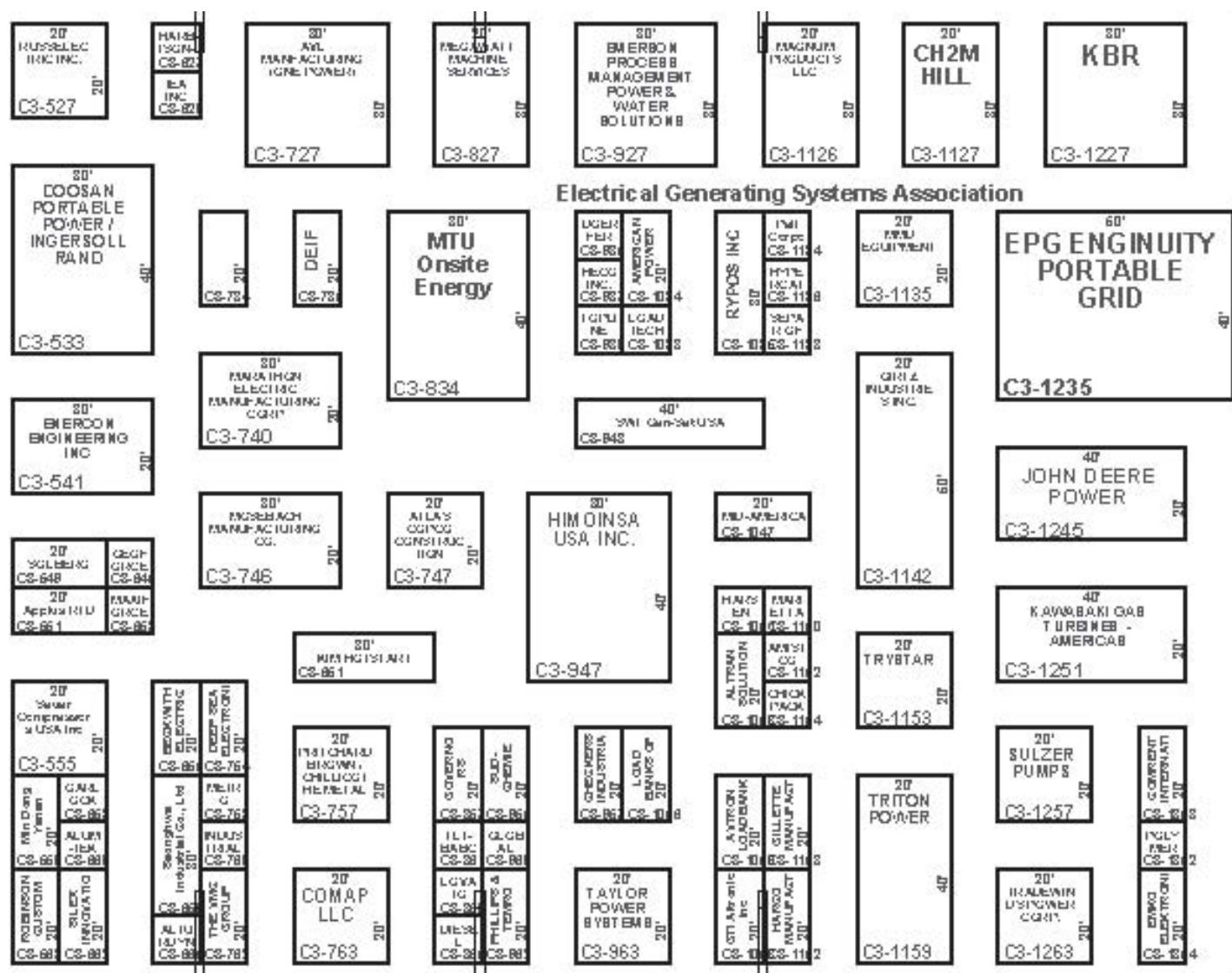
Co-chair: Steve Blankinship, PennWell Corp.

The ESCO model works in many regions for projects as small as 250 KW. This panel session will define the benefits to this economic approach.

- Gearoid Foley, Integrated CHP Systems Corp.
- Richard Sweetser, Exergy Partners
- William Burke, Johnson Controls
- Robert Boyajeff, EMCOR



EGSA On-Site Power Pavilion at POWER-GEN International 2009



Altran Solutions Corp.....	C3-1053	DEIF, Inc.....	C3-735
Alturdyne	C3-665	Diesel Radiator Company.....	C3-865
Alum-Tek Industries.....	C3-660	Direct Wire and Cable, Inc.....	C4-331
American Power Group.....	C3-1034	Doerfer	C3-935
American VULKAN Corporation.....	C4-550	Doosan Portable Power/Ingersoll Rand	C3-533
Amistco Separation Products, Inc.....	C3-1152	DynaGen Technologies, Inc.....	C4-447
Applus RTD	C3-551	E-A-R Aearo Technologies	C4-233
Atlas Copco Construction Equipment LLC	C3-747	EGSA	C4-261
AVL Manufacturing (One Power).....	C3-727	Eldec Induction USA.....	C4-464
Avtron Loadbank, Inc.....	C3-1059	Electroswitch	C4-546
Basler Electric	C4-247	Emerson Process Management	C3-927
Beckwith Electric Co.	C3-655	Emko Elektronik A.S.....	C3-1364
Blue-Stream Services	C4-259	Enercon Engineering, Inc.....	C3-549
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Cannon Load Banks	C4-355	EPG	C3-1235
CH2M Hill	C3-1127	Flight Systems	C4-157
Checkers Industrial Products	C3-957	GAC	C3-857
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Control Switches International, Inc.....	C4-432	Global Power Products (Mack Boring)	C4-563
DCL International, Inc.....	C4-553	Global Power Supply	C3-960
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Guascor.....	C4-135
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Hypercat Advanced Catalyst Products.....	C3-1136
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IES.....	C4-163
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Indiana Track and Casino Bets on Standby Power System

State-of-the-art sound attenuation system protects horses in nearby stables



For more than 15 years, Hoosier Park Racing has run standardbred, thoroughbred and quarter horses at its track located about 20 miles northeast of Indianapolis. Out in corn country and at the end of a single power line, the track often experienced electrical power brownouts and blackouts caused by the summer storms in central Indiana as well as the growing demand for power in the area. When track owners decided to add a 90,000-square-foot casino to the facility, they didn't want to contend with continued outages so they turned to MTU Distributor Clarke Power Services for a standby power system that would keep the lights burning, the horses running and the electronic gaming machines dinging.

"Back when Hoosier Park was just a racetrack and the frequent power outages lasted for an hour or more, our racing customers would be subjected to a major inconvenience," says Clint McKenzie, director of non-gaming operations at Hoosier Park & Casino. Unwilling to tolerate power

failures that would interrupt the new gaming operations, Hoosier Park worked with both the local utility and the consulting electrical engineer, Meridian Engineering, to design a total solution for power reliability.

System Supplies All Power Needs

To ensure that there was never an interruption in power, Meridian Engineering recommended that the Hoosier facility install a pair of sound-attenuated 1000 kW diesel generator sets. According to Ed Yoke, power generation sales engineer for Clarke Power Services, the total 2000 kW generating capacity is enough to accommodate 100 percent of the current energy needs of the casino, including 2,000 electronic slot machines, new electronic poker tables, lighting, emergency systems, food service and refrigeration. Also backed up are the security systems, the slots control system, the casino surveillance cameras and the HVAC. To further improve power reliability, Hoosier Park & Casino arranged

for the local utility to bring in a second feeder line to the facility from a separate substation.

The current installation features two diesel engine-powered 1000 kW generator sets each powered by a diesel engine designed for very low emissions that produce only 5.5 grams per horsepower-hour of nitrogen oxides, 1.44 grams per horsepower-hour of carbon monoxide and 0.131 grams per horsepower-hour of particulate matter. Both engines are certified to EPA Tier 2 standards. The power system also includes dual service entrance rated automatic transfer switches and associated paralleling switchgear.

In many standby applications, the HVAC load may be so large that facilities opt to shed that load and instead back up only critical or life-safety loads. However, Hoosier Park & Casino's power system features a state-of-the-art solution. "Our HVAC system is designed to work in conjunction with the generator sets and the building automation system (BAS) that

controls the HVAC," says McKenzie. "The chiller load can be reduced by 50 percent, if needed, while the facility is running on the generator sets. But the system would only need to reduce the chiller load if outside temperatures were near design maximums. Up to a certain cooling level, we can maintain 100 percent comfort in the facility on standby power."

Sound Attenuation Protects Horses

Because the two generator sets are located outside the casino building in close proximity to the racing stables, there was concern that the horses might be spooked whenever the generators ran. "At any given time there may be upwards of 300–350 horses in the stables," says McKenzie, "some of them representing very large financial investments." As a result, the power system design included critical-grade exhaust silencers and sound-attenuated steel enclosures. The enclosures limit the sound from the generator sets to 75 dB(A) at full load measured from 23 feet. The actual sound level at the stables is much lower because the sound level

decreases the further the distance from the source. According to McKenzie, the horses have never been disturbed by generator noise, either during generator exercising or actual use as backup power.

Maintenance is Key to Reliability

To be certain that the generator sets will start and run as designed when they are needed, Hoosier and Clarke set up a regular exercise and maintenance schedule. "We exercise the generator sets on a weekly basis for about 30 minutes or long enough to get the engines up to operating temperature," says McKenzie. "We also exercise the transfer switches on a regular basis without transferring power. This makes sure that the contacts are free to operate."

Twice per year, McKenzie says, they do a full-load test during which they transfer the entire facility load to the standby system. This ensures that the entire system is functioning properly.

Not long after the generators were installed, they were called upon to provide power for the casino. "There have already been two instances when the units came

on automatically—one was an intermittent brownout, a voltage drop that forced us to run on generator power for about two hours. Another time, there was a complete loss of power that lasted only a few minutes. However, the units fired up and came online within ten seconds and everything worked perfectly," McKenzie says.

While the 2000 kW power system is able to supply all the power necessary to run the casino on standby power today, there is room for adding two more generator sets in the future if the facility expands. There is also space in the mechanical room for additional transfer switches and controls.

McKenzie says that the power system has been an important addition to the facility, and that MTU Onsite Energy was chosen by Hoosier's consulting engineers based on quality, pricing and local service expertise. "Hoosier Park & Casino attracted more than 2 million visitors during the first year of operation," reports McKenzie. "That's a lot of betting that never got interrupted by the lights going out." ■

Editor's note: for more information, visit www.clarkepowerservices.com



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Stay on Top of Your Game with EGSA's Electrical Generator Systems Technician Certification Program



Think things move pretty fast in today's business world? Think how fast they'll be moving one, five or even 10 years down the road. That's why you need every advantage to stay on top.

It's no secret that technology is becoming more complex—not less—and that makes today's On-Site Power Generation System a lot more expensive. End-users—your customers—don't want just anybody with a basic knowledge of mechanics to install and maintain their equipment. They want to be confident that all work has been performed by qualified personnel. Suppliers want assurance that skilled technicians are performing maintenance and repairs to guard against unnecessary returns or warranty repairs.

As Good As Your Word

In the past, your word was the only assurance that your technicians are skilled and knowledgeable. But now, through EGSA's Electrical Generator Systems Technician Certification Program, there is a way that you can back up those words with objective evidence of your technicians' proficiency.

EGSA offers you a big advantage: For the first time in our industry, we have an objective and accurate way to determine generator technician proficiency. That means that the same standards will be used to measure the skills and knowledge of technicians from Maine to Manitoba and Mexico. Yes, Manitoba and Mexico! EGSA has determined that there is no reason why the test could not be fairly applied to any NAFTA technician.

WHAT ARE THE BENEFITS?

For the Employer, certification helps ensure that your technicians have the critical knowledge and skills to succeed in their jobs. And everyone will be comfortable knowing that your certified technicians' expertise has been confirmed by the industry organization through a program that was developed by a university. Encouraging and helping your technicians become certified signifies your commitment to the highest of standards. Plus, it lends an added level of credibility to your firm and can

sharpen your competitive edge. Employing certified technicians will promote customer satisfaction and you won't have to be shy about offering assurance that your technicians are qualified. Certification can also help you select potential new hires, analyze job performance, evaluate employees and motivate technicians to enhance their skills and knowledge.

Think about the message that certification sends to those with whom you do business. Why would anyone want a technician who isn't certified performing critical maintenance or repair tasks? Employing certified technicians gives you an added tool with which to market your business.

As our members have said, "We've seen too many backyard mechanics damage expensive equipment. This program will provide credibility for my company and will help build pride and a commitment from technicians to be the best."

FOR THE TECHNICIAN

Certificate holders benefit too. Certification shows employers, clients, and associates that you are committed as a professional. It provides recognition of your knowledge and skill, shows your commitment to your profession and can help with job advancement. Certification is a mark of excellence that you carry with you everywhere you go.

Acquiring certification indicates that you have the knowledge and proficiency required to perform as an Electrical Generating Systems Technician professional. Becoming certified can increase your salary, enhance your skills, and make your job more satisfying.



Certification helps ensure that your technicians have the critical knowledge and skills to succeed in their jobs.

THE CERTIFICATION TEST

EGSA collaborated with Ferris State University to develop the certification test and program. Through a scientific process, our panel of technical experts identified 12 duty areas (such as "Basic Electricity") and 61 tasks (such as "demonstrate knowledge of AC electrical theory") within the duty areas. The duty areas and tasks were ranked and rated in terms of their relative importance, the frequency with which a task is performed, and skill level (i.e. Senior/Expert; Intermediate; and Entry Level.) All this data was combined to develop the certification test that was then statistically validated through a pilot test taken by generator technicians from across the United States.

WHO CAN TAKE THE TEST?

There are no pre-qualifications for taking the EGSA Certification test. We recommend three or four years of field experience before taking the test. Technicians who have had formal education in On-Site Power Generation (a degree or certificate from a technical school or community college) may need less field experience. Those who pass the test will have a comprehensive knowledge of basic electricity, the functions of a gen-set's mechanical and electrical components, the interactions and relationships among components and an understanding of various elements of the installation, service, maintenance, and repair of gen-sets and On-Site Power Generation Systems.



CERTIFICATION TESTING COVERS:

- Automatic Transfer Switches
- Communication & Documentation
- Engine Generator Instrumentation & Controls
- Multiple Generator Switchgear & Controls
- Troubleshooting System Problems
- Auxiliary Support Systems
- Basic Electricity
- Prime Movers
- Governors
- Voltage Regulators
- Generators/Alternators

USE THE STUDY GUIDE TO PREPARE!

Use of the program's Study Guide is an excellent way to help technicians prepare for the test and should clearly indicate if they are ready to take (and pass) the certification exam. In addition to useful formula pages, the guide contains almost 200 multiple choice practice questions that cover all parts of the certification test. In addition to identifying the correct answer, the guide also indicates in most cases why a particular choice is correct and why the others are incorrect. The

Guide also identifies resource material where technicians can get additional or more in-depth information about a given topic.

Need more information? Visit us online at www.EGSA.org to find extensive and detailed information about the certification program. Or contact EGSA Director of Education George Rowley via e-mail at G.Rowley@EGSA.org.

DISCLAIMER OF LIABILITY

Certified status is an indication that an individual has completed a combination of defined education, experience or examination requirements. However, Certification is not a guarantee or assurance of the competence or ability of any particular individual. Further, given the rapid changes in the field, the Electrical Generating Systems Association cannot warrant that the Examination and other Certification materials will at all times reflect the most current state of the art.

The Electrical Generating Systems Association disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the Certification Program or the acts or omissions of any person who has been Certified by the Electrical Generating Systems Association. In conducting the Certification Program, including issuing Certifications, the Electrical Generating

Systems Association is not undertaking to render professional or other services for or on behalf of any person or entity, nor is the Electrical Generating Systems Association undertaking to perform any duty owed by any person or entity to someone else. Anyone using the services of a person who has been Certified should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

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EGSA Releases 200W-2009 Recommended Practice for Seismic and Wind Certification

The Electrical Generating Systems Association (EGSA) has released EGSA 200W-2009 Recommended Practice for Seismic and Wind Certification for Compliance to the International Building Code (IBC).

The recommended practice was written to define a set of acceptable criteria in the power generation industry for suitable methods of analysis and testing of electrical and mechanical equipment when IBC certification is required.

Section 1708.5 of the IBC Code describes accepted methods for qualification, and EGSA 200W-2009 further defines those methods for the power generation industry.

All of EGSA's Codes, Standards and Recommended Practices—including the new 200W-2009—may be downloaded free of charge from the EGSA web site at www.EGSA.org. ■

EGSA Reaches Important Milestone With 300th Certified Technician

The Electrical Generating Systems Association (EGSA) has announced that it reached an important milestone in October when the 300th technician passed the EGSA Electrical Generator Systems Technician certification test.

While final numbers for October are not yet available, the number of Certified Technicians continues to grow monthly. This year, an average of six techs per month have passed the Certification test; the current overall pass rate is 74%.

EGSA is also pleased to announce the program set a new record in August when 22 technicians passed the test. That edges out the old monthly record (April 2008) that saw 21 technicians pass the test. While the sluggish economy may have slowed the pace of program growth, the growing number of Certified Techs continues to demonstrate the value of the program.

New Minimum Experience Requirement: At their September meetings, the

EGSA Certification Committee recommended and the EGSA Board of Directors approved a policy change whereby technicians will need a minimum of three years work experience before they are eligible to take the Certification test. ■

MTU Onsite Energy Designated as Testing Center for EGSA Generator Technician Certification Program

The Electrical Generating Systems Association (EGSA) is pleased to announce that MTU Onsite Energy—one of the world's leading manufacturers of diesel-powered generator sets—has been designated as an official Testing Center for the EGSA Generator Technician Certification Program by Ferris State University.

MTU sought approval as a testing site as a means of adding value for MTU Distributors that send technicians to the company's Mankato, MN headquarters for factory training. By locating a Testing Center within MTU's training facilities, Distributor technicians will be able to complete their MTU training, study for their EGSA Generator Technician Certification and take the test all in one convenient location.

"Our designation as an official Testing Center helps us provide even more value for our technicians who come to Mankato for training," says John Haack, training manager for MTU Onsite Energy. "Now when our distributors and dealers send their technicians to us for training, they have the option to take the certification test right here in the convenience of our training center."

"The commitment of MTU Onsite Energy to the Technician Certification Program is an excellent indication of the company's investment in the future of the onsite power industry," says George Rowley, EGSA Director of Education. "From an industry point of view, we see the number of certified technicians increasing as we receive more endorsements from manufacturers like MTU Onsite Energy. It's not a far stretch to think that as the number of certified technicians goes up, so does

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the overall quality of service in the onsite power industry."

Technician certification offers employers value in that it helps to ensure that technicians have the critical knowledge and skills to succeed in their jobs. When employers promote certification to their technicians and customers, it signifies their commitment to the highest of standards, enhances the firm's credibility and effectively positions the employer as a leader within the marketplace.

Technicians benefit, too, because certification demonstrates their professionalism and commitment to employers, clients, and associates alike. It provides recognition of the technician's knowledge and skill and serves as a mark of excellence the technician can carry with them wherever they go in their career.

MTU Onsite Energy Corp. (formerly Katolight Corporation) is a leading producer of diesel-powered generator sets from 30 to 3,250 kW and natural gas-powered generator sets from 20 to 400 kW for standby, prime power and cogeneration applications. The company also provides automatic transfer switches, paralleling switchgear, controls and accessories for complete power system solutions. For more information, visit www.mtu-online.com ■

About EGSA

EGSA is an international trade association made up of 700 companies throughout the United States and a dozen other countries. Headquartered in Boca Raton, FL, it is the world's largest organization dedicated to On-Site Power Generation and works to provide a variety of educational opportunities to members of the industry. For more information about EGSA and any of its programs, member benefits and services, visit us online at www.EGSA.org or call 561-750-5575.

Doosan Infracore Portable Power Names Gen-Tech as New Dealer

Doosan Infracore Portable Power has named Arizona Generator Technology (Gen-Tech) as an authorized dealer of its Ingersoll Rand-branded line of generators, light construction equipment and lighting systems.

Gen-Tech is a full-service company specializing in power generation systems. Gen-Tech offers systems from 8 kilowatts to 2000 kilowatts; its fleet will now include 10 models of generators from Doosan Infracore Portable Power ranging from 25 kVA to 570 kVA. In addition to generators, Gen-Tech will also carry Ingersoll Rand-branded light compaction equipment and lighting systems.

"Our business is all about providing value to our customers," said Bob Piske, principal for Gen-Tech. "Our partnership with Doosan Infracore Portable Power gives us the ability to provide more value by offering additional equipment our customers may need."

"We are extremely proud to have the Doosan Infracore Portable Power name associated with Gen-Tech," said John Hargett, district manager for Doosan Infracore Portable Power. "Given their years of experience and reputation as a proven leader in the power generation industry, we know that Gen-Tech will help take our generator product line to the next level."

Gen-Tech has been in business since June 1990 and services Arizona and southern Nevada. Gen-Tech serves the commercial and industrial market and is recognized as an expert in emergency, peak shave, co-generation and prime power applications.

Visit doosanportablepower.com for more information.

Cummins Recognized by Newsweek magazine

Efforts by Cummins Inc. to minimize its environmental footprint, along with its efforts to reduce greenhouse gas emissions, helped the Company achieve a ranking in the top 20 percent of the 500 largest U.S. companies in Newsweek's inaugural "green" survey.

Newsweek used publicly available data analyzed by two leading research firms and collected reputational information on all 500 companies to establish its ranking. Cummins placed seventh among 47 industrial goods company.

Newsweek credited Cummins for its ambitious goal of reducing greenhouse gas emissions from its facilities worldwide by 25 percent as a percentage of sales from 2005-2010. The move is part of Cummins' voluntary commitment to the EPA Climate Leaders program. For more information, visit www.Cummins.com.

Saft Receives Supplier Excellence Award from Raytheon

Saft, a world leader in the design, development and manufacture of high-end batteries, was honored for the fourth consecutive year by Raytheon Network Centric Systems (NCS) during the Annual Supplier Excellence Awards. The battery manufacturer, which received a 4 Star Award of Excellence, was one of only 24 recipients selected from more than 4,200 suppliers for this year's awards.

Raytheon NCS instituted the annual Supplier Excellence Award program in 2006 to recognize suppliers who have provided outstanding service. Award candidates undergo a rigorous assessment process and are judged on certain criteria, including

overall quality, on-time delivery, as well as price and management responsiveness. Saft has been recognized as an award winning supplier each year since the program began, receiving 4 Star recognition in 2008 and 2007, and the 3 Star Award in 2006. The highest level of recognition is a 5 Star Award of Excellence.

For more information, visit Saft online at www.saftbatteries.com.

Wärtsilä opens Service Centre in Murmansk

Wärtsilä has opened a Service Centre in Murmansk, Russia as part of its commitment to expand in line with the increasing marine activity in the Barents Sea region. To emphasise the importance of co-operation, Wärtsilä's CEO and President, Ole Johansson and the Governor of the Murmansk Oblast region of Russia, Dmitry Vladimirovich Dmitrienko, jointly signed a document of goodwill.

Being the only year-round ice-free port in northwest Russia, Murmansk is rapidly being developed as a major transport hub. It is also the operational centre for the development of the vast Shtokman gas condensates field. The port is home to more than 20 maritime companies, and is attracting an increasing number of international companies to the region.

The Wärtsilä Murmansk Service Centre provides a full range of sales and support services for all local marine and offshore customers. The service capacity will enable Wärtsilä to offer more efficient and fully focused support to the growing fleet of merchant vessels, offshore vessels, offshore platforms, and offshore facilities in the region. For more information, visit Wärtsilä online at www.wartsila.com. ■



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Application for Membership

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E-Mail: e-mail@EGSA.org • World Wide Web: www.EGSA.org

Under the leadership of its Board of Directors and operating through its various committees and staff, EGSA strives to educate, provide networking opportunities and share relevant knowledge and trends with industry professionals including manufacturers, distributor/dealers, engineers, manufacturer representatives, contractor/integrators and others serving On-Site Power consumers.

1. Contact Information

Please type or print all information in upper and lower case (NOT ALL CAPS!)

Company _____

Address _____

City _____

State/Province _____

Zip/Postal Code _____

Country _____

Phone _____

FAX _____

Official Representative _____

Title _____

Representative's E-Mail _____

Company's Web Address _____

How did you hear about EGSA? Web site Powerline magazine Colleague POWER-GEN Other _____

Why are you joining EGSA? Certification Program CEU Program Power Schools Buying Guide Listing Other _____

2. Member Classification

Read the Membership classifications below and check the box that describes your firm's classification.

I. FULL MEMBERSHIP

MF **Manufacturer Membership**

Any individual, sole proprietor, partnership or corporation seeking membership must apply for a Full Membership as a manufacturer if they meet one or more of the following criteria:

1. They manufacture prime movers for power generation.
2. They manufacture generators or other power conversion devices producing electricity.
3. They manufacture switchgear or electrical control devices.
4. They manufacture or assemble generator sets, UPS systems, solar power, hydropower, geothermal, or any other power production or conversion system including related components or accessories for national or regional distribution.
5. They are a wholly owned subsidiary of a firm that qualifies under rules one through four.

DD **Distributor/Dealer Membership**

Any individual, sole proprietor, partnership or corporation actively engaged as a distributor or dealer for products listed under Manufacturer Membership may apply for Full Membership as a Distributor/Dealer. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

CI **Contractor/Integrator Membership**

Any individual, sole proprietor, partnership or corporation actively engaged as a Contractor or Equipment Integrator of products listed under Manufacturer Membership, not bound by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product. These firms typically purchase products from a Distributor/Dealer, Manufacturer or Retailer, adding value through installation, product knowledge, relationships, unique services, etc., and then re-sell the resulting product to an end-user.

MR **Manufacturer's Representative Membership**

Any individual, sole proprietor, partnership or corporation actively engaged in the representation of products listed under Manufacturer Membership may apply for Full Membership as a Manufacturer's Representative. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

EM **Energy Management Company Membership**

Any individual, sole proprietor, partnership or corporation engaged in energy management, including Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for Full Membership as an Energy Management Company.

Associate Full Membership (mark appropriate category at right)

Any individual, sole proprietor, academic institution, student, partnership or corporation meeting the requirements of Associate Regular Membership may apply for Full Membership at their option to enjoy the privileges of Full Membership, including the rights to vote and to serve on EGSA's Board of Directors. Initiation fees and annual dues will be assessed at the existing non-manufacturer Full Member rates.

II. ASSOCIATE REGULAR MEMBERSHIP

AA **Trade Publication Membership**

Any trade publication dealing with the electrical generating systems industry or its suppliers may apply for Associate Membership—Trade Publications.

AB **Trade Association Membership**

Any trade association made up of individual or company members sharing a common interest in the electrical generating systems industry may apply for Associate Membership—Allied Associations.

AC **Engineer Membership**

Any consulting or specifying engineer may apply for Associate Membership—Engineer. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

AD **End-User Membership**

Any individual employee of a company who owns or operates electrical generating equipment and/or related switchgear or components, whose responsibility to his employer includes planning, design, installation, supervision, or service of such equipment may apply for Associate Membership—User. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

AE **Service Membership**

Any individual, organization or academic institution that offers services such as research, testing or repair to the electrical generating systems industry may apply for Associate Membership—Services. Membership may either be held in the individual's name or the organization's name under this classification. Individual companies whose employer or parent organization qualifies as a Full Member, as described in the Full Membership section, do not qualify for this category.

AG **Educational Institution Membership**

Any postsecondary vocational-technical school or college offering on-site power generation-related instruction may apply for Associate Membership—Education Institution.

AR **Retiree Membership**

Any individual who retires from a member company may apply for Associate Membership—Retired. This classification does not apply to any individual who is employed more than 20 hours per week.

AF **Student Membership**

Any individual currently enrolled at an academic institution may apply for Associate Membership—Student.

Application for Membership – page 2

Dues Schedule (Use for Section 3)

	Annual Dues	Initiation Fee	TOTAL
Manufacturer.....	\$825.....	\$200.....	\$825
Distributor/Dealer.....	\$285.....	\$100.....	\$285
Contractor/Integrator	\$285.....	\$100.....	\$285
Manufacturer's Rep.....	\$285.....	\$100.....	\$285
Full Associate Member.....	\$285.....	\$100.....	\$285
Energy Management Companies.....	\$200.....	\$200.....	\$200
Regular Associate Member.....	\$200.....	\$100.....	\$200
Retiree Member.....	Complimentary.....	\$0.....	\$0
Student Member	Complimentary.....	\$0.....	\$0

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NOTE: A FULL 12-MONTH DUES PAYMENT MUST BE RECEIVED WITH THIS APPLICATION. The Association's Membership Year is January 1 through December 31. Dues payments that extend beyond the first Membership Year will be applied to the second year's dues.

FULL PAYMENT MUST BE RECEIVED WITH APPLICATION.

3. Membership Dues (Please fill in the appropriate TOTAL amount from the above dues schedule.)

Membership Dues \$ _____

Membership Plaque (optional)** \$ 39.95**

On-Site Power Reference Book (optional)** \$ 125.00**

Florida Residents: Add 6.5% Sales Tax to ** items \$ _____

Continental US Residents add \$5 shipping/handling to**items. \$ _____

Non Continental US Residents should call EGSA

Headquarters for shipping charges for **items.

TOTAL \$ _____

4. Payment Method (Payable in US\$ drawn on U.S. bank, U.S. Money Order, or American Express)

Check # _____ Amount Due \$ _____

Money Order

Mastercard Visa American Express

Card # _____ Exp. Date _____

Signature: _____

Print Name: _____

5. Products/Services Please describe the nature of your business (50 words or less, NOT ALL CAPS). If you are a Manufacturer's Representative or Distributor/Dealer, please indicate which manufacturers you represent and/or distribute for; if you are a student, please provide the name and location of your school, your major and your anticipated graduation date:

Do you buy AND sell equipment? Yes No

Do you manufacture packaged equipment? Yes No

Available Codes:

- 01 --- Batteries/Battery Chargers
- 02 --- Control/Annunciator Systems
- 29 --- Education
- 30 --- Emission Control Equipment
- 04 --- Enclosures, Generator Set
- 05 --- Engines, Diesel or Gas
- 06 --- Engines, Gas Turbine
- 07 --- Engine Starters/Starting Aids
- 08 --- Filters, Lube Oil, Fuel or Air
- 28 --- Fuel Cells
- 03 --- Fuel Tanks and Fuel Storage Systems
- 09 --- Generator Laminations
- 10 --- Generator Sets
- 11 --- Generators/Alternators
- 12 --- Governors
- 13 --- Heat Recovery Systems
- 14 --- Instruments and controls, including meters, gauges, relays, contactors, or switches
- 15 --- Load Banks
- 16 --- Motor Generator Sets
- 17 --- Radiator/Heat Exchangers
- 18 --- Relays, Protective or Synchronizing

- 19 --- Silencers/Exhaust Systems/Noise Abatement
- 20 --- Solenoids
- 21 --- Switchgear and Transfer Switches (Automatic or Manual), Bypass Isolation Switches, and/or Switchgear Panels
- 22 --- Trailers, Generator Set
- 23 --- Transformers
- 24 --- Uninterruptible Power Supplies
- 25 --- Vibration Isolators
- 26 --- Voltage Regulators
- 27 --- Wiring Devices or Receptacles

Enter codes here:

Products sold: _____

Products rented: _____

Products serviced: _____

6. Sponsor(s): A "Sponsor" is an EGSA Member who interested you in filling out this application. It is not mandatory that you have a sponsor for the Board to act favorably on this application; however, if a Member recommended that you consider membership, we request that individual's name and company name for our records.

Sponsor Name _____ Company Name _____

7. Official Representative's Authorization

Signature _____ Date _____

New EGSA MEMBERS

MF=Manufacturer DD=Distributor/Dealer CI=Contractor/Integrator MR=Manufacturers Rep EM=Energy Management Co.
 AA=Trade Publication AB=Trade Association AC=Engineer AD=End-User AE=Service AG=Educational Institution AR=Retiree AF=Student

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Alexander Electric Co. is widely recognized as the premier electrical service provider in Columbus, GA and surrounding areas since 1948. We provide a full range of services. Our team members are the best in the area quality work is our goal.	Larry McCormack, President Business: Colorado Standby Power Generation Systems is a well-established distributor of on-site electrical generators, switchgear and related products. We sell and ship products nationwide and worldwide. In business since 1999, Colorado Standby has built a solid reputation as a solutions oriented company providing only top quality power generation equipment and EGSA certified service. We distribute, service and install products from Baldor, Kohler, Yanmar,	Paul Daly, President
American Power Group, Inc.(MF)	ComAp Systems, LLCCI	MTS Power Systems(DD)
Algona IA (515) 395-1360	Joel DeWall, President Roscoe, IL (815) 636-2541	Westbury, NY (516) 334-6500
Fax: (515) 395-1369		Fax: (516) 334-6002
Nicole Fritz-Kemna, Sales Support Administrator	Business: ComAp Systems provides customer focused control solutions to the power generation and engine driven equipment market. We offer complete turnkey solutions to both new installations and any retrofit/existing installations.	Barry Segal, President Business: Generator sales, service and installations for industrial, residential, mobile and marine markets. Our primary brand is Kohler and we are factory certified. We employ 6 techs and 2 sales people with support staff for parts and service. Our facility is 10,000 ft ² in western Long Island. We are now celebrating our 20th year in business.
John Anderson(AE)	Cummins Rocky Mountain, LLC(DD)	Paramount Power Systems LTDDD
Pitt Meadows, BC Canada (778) 888-3686	Henderson, CO (800) 927-7201	Missauga, ON Canada (905) 564-5444
John Anderson		Fax: (905) 670-8819
Business: We offer rental and service of diesel and gasoline powered generators, cabling, switchgear, accessories and fuel management. In addition to our planned preventative maintenance programs, we also offer reactive emergency response, backed by our 24/7 on-site support.	Earnest Glaser, Power Generation Product Specialist Business: Distributor for Cummins Engine Company, Cummins Power Generation, Cummins Power Electronics, Cummins Generator Technology, Cummins Filtration, Cummins Emissions Solutions and Cummins Fuel Systems.	Paul Moccia, VP Sales & Marketing We are an authorized Kohler Power Systems dealer.
Anne Arundel County Government -TrainingAD	Amr ElfarAF	Pramac America(MF)
Millersville, MD (410) 222-8479	Brooklyn Park, MN (800) 345-4655	Marietta, GA (770) 218-5430
Fax: (410) 222-8475		Fax: (770) 218-2810
Helene Raven, Training Manager	Student at Hennepin Technical College studying Diesel Mechanics.	Jeff Webb, Technical Director Business: Manufacturer of generators from 1.2 kW to 2.6 MW portables from 1.2 kW in gas or diesel standby diesel from 12 kW to 2.6 MW switchable from 12 kW to 500 kW. All available in open or sound attenuated packages with options such as ATS, trailer, base tanks or most custom specifications.
We're with the Bureau of Utility Operations, part of the Department of Public Works for Anne Arundel County, Maryland. Anne Arundel County is a local governmental jurisdiction. The BUO is responsible for operating water and wastewater facilities. We employ operators, mechanical technicians, generator technicians, instrumentation technicians, electrical technicians and multiple support staff.		
Charles AyresAF	Ewing ControlsCI	Rapid Pump & Meter Service Co. Inc.(DD)
Alexandria, LA (318) 445-4022	Greenfield, MA (413) 774-7500	Paterson NJ (973) 345-5600
Fax: (318) 448-1727		Fax: (973) 345-0301
Louisiana State University student. General studies with concentration in disaster management.	Tim James, President Business: Ewing Controls specializes in building advanced steam turbine generator controls for the leading US manufacturers of steam turbines.	Tom Callan, Account Representative Business: Kohler dealer
Bay Motor Winding, Inc.DD	EZ Power(DD)	RCOMMR
Long Beach, MS (228) 863-0666	Ocala, FL (352) 368-6000	Minneapolis, MN (763) 557-2801
Fax: (228) 864-4470		Fax: (763) 557-2826
Patrick Benvenutti, VP Sales	Steve Parker, Managing Partner Business: EZ Power is EZ 2 do business with. Servicing the industry, rental generators, parts, new and used equipment. Great price and availability of FG Wilson and Perkins parts. Generators, it's all we do!	Warren Twiehaus, President Factory direct representative for Enersys battery, voltage change switches by CSII, Crompton instruments, Sepam relays, Crydom relays, C&H Technology SCR's and rectifiers.
Distributor of Gillette Generators, Lister-Petter, Baldor Generators & Motors, Briggs & Stratton, EATON. Liebert Partner, ASCO sales, Marathon alternators, LIMA - factory warranty repair, Deep Sea and many more. 26 years in business repairing and selling generators.		
Brudvik Inc.CI	Gemini Electric Inc. dba Power Up Generator Service Co.(CI)	Ken TuAF
Palm Springs, CA (760) 320-4429	Auburn NH (603) 657-9080	Castro Valley, CA (510) 538-3939
(760) 323-3302		Computer Science major at Ohlone Colle in Fremont, CA.
Dan Loy, Chief Mechanic	Scott Scherbon, General Manager Business: Power Up Generator Service Co is a specialty contractor performing on and off site complete servicing, installations and upgrades, parts and generator sales and has standby and prime power rentals up to 2 MW.	
Electrical contractor who services generators through our electrical equipment rental department.		
	Mechanical Service Co.DD	Webb GenTech Services, LLC(DD)
	David Fusco, Owner Pittston, PA (570) 654-2445	Lorton VA (703) 339-5515
		Fax: (703) 339-5521
	Generator sales, service, installation co. We are dealers for Cummins & Generac. In business for 25 years.	Billy Webb, President Business: We represent Volvo Industrial engines, Generac generators, MTU Onsite Energy, ASCO & Zenith ATS', MQ Power. We service or repair all brands of generators & ATS. This also includes fire pumps and controllers. We are a Joslyn-Clark rep as well.
		Yale Chase Equipment & Services, Inc.DD
		Jack Harris, Power Systems General Manager Fontana, CA (909) 428-3400
		Fax: (909) 428-9620
		Generac distributor for southern California.

POWER GENERATION TECHNICIANS

Cummins NPower, the area's exclusive engine & power generation systems distributor for Cummins and Onan products is seeking qualified Field Service Power Generation Technicians to diagnose, troubleshoot, & repair electrical generator systems & related engine mechanical failures, & utility transfer switches & switchgears. Positions are available in Illinois, Wisconsin & North Dakota. To view all open positions visit our website, www.cumminsnpower.com. To apply, send a resumé via email to npowerhr@cummins.com or fax to 651-286-2111. EEO/AA

Generator Sales

Central Power Systems & Services, Inc. – Generator Sales position covering Central Kansas. We offer a strong base wage, incentive program and a full benefit package (including company car, gas allowance, expense card, FREE MEDICAL insurance, FREE LIFE insurance, paid vacation, profit sharing and 401(k), etc.). Fax a cover letter, salary requirements and your resume to 816-781-4518 or e-mail it to jobs@cpower.com EOE

Generator Sales

Pacific Power Products is the authorized distributor for MTU-Onsite Energy and Waukesha in Alaska, Hawaii, Washington and Oregon territory and has several opening(s) for outside salespeople. If sales is a profession that interests and motivates this could be a career opportunity that lasts a lifetime. The position is well supported with dedicated project managers and a strong inside sales team. Successful candidates will have working knowledge of power generation equipment but all applicants with a technical leaning and attitude for sales will be considered. Pacific offers a market competitive compensation package including base, car allowance, health insurance and 401K. Forward resumes to relder@pac-power.com

EXPERIENCED MANAGER

An established, fast growing company in the Southern United States is seeking an **EXPERIENCED MANAGER**. Responsibilities include supervision of service managers, service sales personnel and parts departments. Strong technical background and understanding of sales, service, parts and inventory control of engine-powered products is required. Job requirements would also include reviewing bid specifications, bidding service projects, generating new service opportunities, training new sales/service employees and planning and implementing sales meetings. Candidate must have a strong understanding of all phases of the sales cycle, the ability to effectively overcome technical and business objections of prospective customers, and the ability to work multiple projects and people simultaneously. Job requirements are a BS degree or equivalent technical training or field experience in related fields. Competitive Salary and Benefits. Send resume to J.Kellough@EGSA.org (Reference PLND09JB-1).

GENERATOR SERVICE TECHNICIANS

KELLY GENERATOR & EQUIPMENT, INC., the mid-Atlantic leader in standby electrical generators is seeking experienced Generator Technicians. We are a full service distributor of emergency standby and prime power located in the mid-Atlantic region that covers Delaware, Maryland, Northern Virginia, West Virginia and Washington, DC.

We offer SALES, SERVICE, PARTS & RENTALS

- We have an extensive Service & Parts Department to back up your work.
- We offer factory training on the lines we represent as well as "in house" training.
- We offer medical, dental, vision, 401(k), profit sharing, short and long term disability, paid holidays, annual leave, overtime and paid "On Call."

Must have a High School Diploma (Vo-tech or GED), 3 – 5 years experience servicing industrial generator sets and associated equipment. Must be able to service, repair and troubleshoot the engine, as well as the alternator end and controls of the equipment. MILITARY A PLUS! Visit us on our website at www.kge.com. Fax RESUMES to 410-257-5227 or e-mail to dkelly@kge.com.

RENTAL SALES

KELLY GENERATOR & EQUIPMENT, INC, the mid-Atlantic leader in standby electrical generators is seeking an experienced RENTAL SALES person to join our team. We are a full service distributor of emergency standby and prime power located in the mid-Atlantic region: Delaware, Maryland, Washington DC, Northern Virginia and West Virginia.

Develop strong relationships with electrical and general contractors, home builders, event companies, industrial and commercial end users and rental houses. Focus will be on the rental (and sales) of mobile generator sets as well as renting load banks. We offer a solid base with commission, medical, dental, vision, 401(k), profit sharing and more. FAX resumes to 410-257-5227 or e-mail dkelly@kge.com.

Generator Field Technician

PM Technologies, LLC has several immediate openings for Generator Technicians. We are located and operate in Michigan, Ohio and Northern Indiana. High School diploma or equivalent a must. Military experience a plus. Must be able to troubleshoot and repair the engine (diesel and gaseous) as well as the generator end. Customer interaction will be required on a daily basis. We need highly motivated, self sufficient people to assist in growing our expansion efforts at new branch locations. Benefits include company vehicle, 401k, health, dental and vision coverage's as well as paid bonuses for new account procurement. Please Fax resumes to 248.374.6408 or email to dpopp@pmtech.org

Generator Set Sales/Service

Experienced sales/service engineer needed by southern California company to sell engine generator sets.

Please respond to J.Kellough@EGSA.org (Reference PLND06JB-1).

Generator Sales

Genset Services, Inc. the top tier industrial distributor for Generac generators in South Florida has an opening for an outside salesperson. Candidates should have prior knowledge of emergency power equipment or experience in a similar or related field. Others with strong technical aptitude and a willingness to learn will also be considered. We offer a competitive compensation package that includes a base salary plus commission, car allowance, health insurance and 401k plan. Please forward your resume with cover letter and salary requirements to matt@gensetservices.com.

Generator Field Technician-Experienced

Full-time experienced generator field technician opening in Ft. Lauderdale, FL. Requires advanced knowledge of standby generator systems with minimum 5 years experience. Working knowledge of 12 & 24 VDC controls. Company offers a full comprehensive benefits package. Competitive wage, company vehicle, laptop and cell phone for qualified candidates. Send resumes to careers@acfpower.com or fax to HR at 813-621-6980.

Experienced Power Generation Associates Wanted!

Penn Power Systems, Northeast Energy Systems and Western Energy Systems, leaders in the power generation business, are seeking experienced professionals for various positions within our company. We are actively seeking experienced field service technicians in the Northeast and Western U.S. markets. Candidates should be familiar with natural gas and diesel prime movers with industry experience and knowledge of systems and controls. Penn Power Systems and its divisions offer industry competitive salaries, medical, 401(k), and vacation benefits. All interested parties should send resumes and work related history to jobs@pennpowersystems.com or call 1-877-736-4473. We Proudly Employ EGSA Certified Generator Technicians. EOE M/F/D/V

Generator Parts + Equipment Distribution

Scardana supplies foreign diesel engine parts worldwide, as well as pumps, oil purifiers, compressors, turbochargers, valves, compensators, etc. See also www.scardana.com. We need sales representation in Central America, Caribbean, Brazil, Indonesia, Philippines. Email Philip Rink, sales@scardana.com

Generator Technicians

Due to our continued growth, Central Power Systems & Services, Inc. has immediate openings for Generator Technicians at several of our Missouri, Kansas and Oklahoma facilities. We offer a strong base wage and a full benefit package (including FREE MEDICAL & LIFE insurance) and PAID RELOCATION depending on skill set. Fax a cover letter, salary requirements and your resume to 816-781-4518 or e-mail it to jobs@cpower.com. EOE

EGSA Job Bank Guidelines

EGSA will advertise (free of charge) EGSA Member company job openings in the Job Bank. Free use of the Job Bank is strictly limited to companies advertising for positions available within their own firms. Companies who are not members of EGSA and third-party employment service firms who service our industry may utilize the Job Bank for a \$300 fee. Blind box ads using the EGSA Job Bank address are available upon request; company logos may be included for an additional fee. EGSA reserves the right to refuse any advertisement it deems inappropriate to the publication. Please send your classified ad (limited to about 50 words) to: EGSA Job Bank, 1650 S. Dixie Hwy, Suite 400, Boca Raton, FL 33432. Or, send it via e-mail it to: J.Kellough@EGSA.org

Standby for Big Power



Every Baldor generator set, standard or custom, is designed and engineered to meet the individual needs of your application. Whether it's a 2,000 kW genset to keep your industrial facility up and running, or a 30 kW generator for your remote agricultural needs, Baldor has the right products to meet your need.

Engineered to the highest performance standards and built with unmatched quality, Baldor gensets give you the power you need, when you want it.

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